Series 1962, No. 10 Issued January 1966

Soil Survey
Bamberg County
South Carolina

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
SOUTH CAROLINA AGRICULTURAL EXPERIMENT STATION

HOW TO USE THIS SOIL SURVEY REPORT

THIS SOIL SURVEY of Bamberg County will serve several groups of readers. It will help farmers in planning the kind of management that will protect their soils and provide good yields; assist engineers in selecting sites for roads, buildings, ponds, and other structures; aid managers of forests and woodland; add to soil scientists' knowledge of soils; and help prospective buyers and others in appraising a farm or other tract.

Locating the Soils

At the back of this report is an index map and a soil map consisting of many sheets. On the index map are rectangles numbered to correspond to the sheets of the soil map so that the sheet showing any area can be located easily. On each map sheet, the soil boundaries are outlined and there is a symbol for each kind of soil. All areas marked with the same symbol are the same kind of soil. The soil symbol is inside the area if there is enough room; otherwise, it is outside the area and a pointer shows where it belongs. For example, an area on the map has the symbol Ba. The legend for the set of maps shows that this symbol identifies Bayboro loam. That soil and all others mapped in the county are described in the section "Descriptions of the Soils."

Finding Information

In the "Guide to Mapping Units" at the back of this report, the soils are listed in the alphabetic order of their map symbols. This guide shows where to find a description of each soil and a discussion of its capability unit, woodland suitability group, and wildlife group. It also shows where to find the acreage of each soil, the yields that can be expected, and information about engineering uses of soils.

Farmers and those who work with farmers can learn about the soils on a farm by reading the description of each soil and of its capability unit and other groupings. A convenient way of doing this is to turn to the soil map and list the soil symbols of a farm and then to use the "Guide to Mapping Units" in finding the pages where each soil and its groupings are described.

Foresters and others interested in woodland can refer to the subsection "Use of Soils as Woodland." In that subsection the soils in the county are placed in groups according to their suitability for trees, and the management of each group is discussed.

Game managers, sportsmen, and others concerned with wildlife will find information about the main kinds of wildlife and their food and cover in the subsection "Management of Soils for Wildlife and Fish."

Engineers and builders will find in the subsection "Engineering Applications" tables that give engineering descriptions of the soils in the county; name soil features that affect engineering practices and structures; and rate the soils according to their suitability for several kinds of engineering work.

Scientists and others who are interested can read about how the soils were formed and how they are classified in the section "Formation and Classification of Soils."

Students, teachers, and other users will find information about soils and their management in various parts of the report, depending on their particular interest.

Newcomers in Bamberg County will be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the section "General Nature of the County," which gives additional information.

* * * * *

Fieldwork for this survey was completed in 1962. Unless otherwise indicated, all statements in the report refer to conditions in the county at the time the survey was in progress. The soil survey of Bamberg County was made as part of the technical assistance furnished by the Soil Conservation Service to the Edisto Soil Conservation District.

Cover picture: Terraces and contour tillage on soils in subclass IIe, Bamberg County, S.C.

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SOIL SURVEY OF BAMBERG COUNTY, SOUTH CAROLINA

BY ERON E. CROW, E. C. MOORE, AND O. L. DODD, SOIL CONSERVATION SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE IN COOPERATION WITH THE SOUTH CAROLINA AGRICULTURAL EXPERIMENT STATION

BAMBERG COUNTY lies in the southwestern part of South Carolina (fig. 1) in the upper and middle Coastal Plain. It covers an area of about 252,800 acres, or 395 square miles. The land is gently sloping to undulating and ranges in elevation from 100 to 270 feet above sea level. The higher areas are along the western boundary, and slope is gradual and to the southeast. Many egg-shaped, swampy depressions called bays extend from northeast to southwest in the central part of the county. These bays vary from a few acres to more than a square mile in size. The large end of the egg-shaped bays faces northwest, and the small end faces southeast.

Before it was settled, Bamberg County was covered by a vast forest. Pine and hardwood trees grew on the uplands, and cypress and gum were in the swamps. The upland forest now consists of loblolly and longleaf pines, and there are a few oaks, hickory, persimmon, beech, and dogwood. In the swamps, cypress and blackgum are the dominant trees. On the moist soils are hickory, loblolly and slash pines, blackgum, sweetgum, holly, and live and water oaks. Pine, blackgum, and alder grow in the low, wet sandy areas. Higher sandy areas support longleaf and slash pines and some loblolly pine, blackjack oak, and turkey oak. Most areas have an undergrowth of brush, vines, and shrubs.

The climate is favorable for farming; extremes of temperature and rainfall are rare. Summers are long and fairly hot, but the mean temperature in July is only about 80° F. Winters are mild, and the mean temperature in January is 48°. However, a maximum temperature of 109° and a minimum temperature of −3° have occurred. The mean annual rainfall is 45.16 inches, and rainfall is well distributed throughout the year. It is heaviest in June, July, and August. Hurricanes occur in July, August, and September, but much of the rain that falls during these storms is lost as runoff.

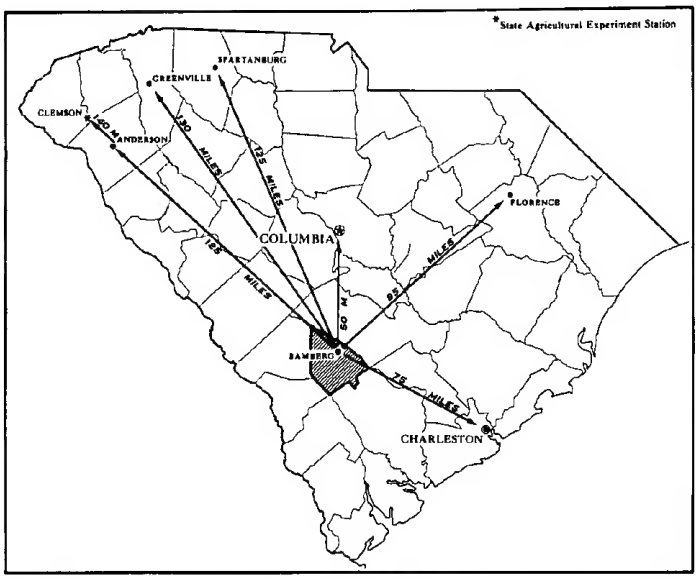

Figure 1.—Location of Bamberg County in South Carolina.

Many kinds of soils occur in Bamberg County. These soils range from dry to wet. Texture of the surface soil ranges from sand to clay loam, but the dominant soils are loamy sand to sandy loam. The soils developed from marine deposits consisting of beds of sand and sandy clay. In much of the county, marl underlies the marine deposits. Different soils are on uplands, on stream terraces, on first bottoms, and in small areas of local alluvium. Because of the heavy rainfall, the soils have been severely leached of plant nutrients and contain a medium to very small amount of organic matter. They are medium acid to strongly acid.

The county is agricultural. The chief crops are cotton, soybeans, and small grain. Although cotton remains the most important crop, in recent years it has decreased in acreage, and soybeans have increased. Corn and hay are grown to feed livestock. About half of the county is wooded.

In the county are a few industrial plants.

According to the 1960 Census of Agriculture, the population of the county was 16,274, which is about 7.5 percent less than the population in 1950.

How Soils Are Mapped and Classified

Soil scientists made this survey to learn what kinds of soils are in Bamberg County, where they are located, and how they can be used.

They went into the county knowing they likely would find many soils they had already seen, and perhaps some they had not. As they traveled over the county, they observed steepness, length, and shape of slopes; size and speed of streams; kinds of native plants or crops; kinds of rock; and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material that has not been changed much by leaching or by roots of plants.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to nationwide, uni-

form procedures. To use this report efficiently, it is necessary to know the kinds of groupings most used in a local soil classification.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, all the soils of one series have major horizons that are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Norfolk and Lakeland, for example, are the names of two soil series. All the soils in the United States having the same series name are essentially alike in those characteristics that go with their behavior in the natural, untouched landscape. Soils of one series can differ somewhat in texture of the surface soil and in slope, stoniness, or some other characteristic that affects use of the soils by man.

Many soil series contain soils that differ in texture of their surface layer. According to such differences in texture, separations called soil types are made. Within a series, all the soils having a surface layer of the same texture belong to one soil type. Norfolk loamy sand and Norfolk loamy fine sand are two soil types in the Norfolk series. The difference in texture of their surface layers is apparent from their names.

Some soil types vary so much in slope, degree of erosion, number and size of stones, or in some other feature affecting their use that practical suggestions about their management could not be made if they were shown on the soil map as one unit. Such soil types are divided into soil phases. The name of a soil phase indicates a feature that affects management. For example, Norfolk loamy sand, 0 to 2 percent slopes, is one of several phases of Norfolk loamy sand, a soil type that ranges from nearly level to moderately steep.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew soil boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, trees, and other details that greatly help in drawing boundaries accurately. The soil map at the back of this report was prepared from the aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning management of farms and fields, a mapping unit is nearly equivalent to a soil type or a phase of a soil type. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kind that have been seen within an area that is dominantly of a recognized soil type or soil phase.

On most soil maps, areas are shown that are so rocky, so shallow, or so frequently worked by wind and water that they scarcely can be called soils. These areas are shown on a soil map like other mapping units, but they are given descriptive names, such as Local alluvial land or Swamp, and are called land types rather than soils.

While a soil survey is in progress, samples of soils are taken, as needed, for laboratory measurements and for engineering tests. Laboratory data from the same kinds of soils in other places are assembled. Data on yields of crops under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soils. Yields under defined management are estimated for all the soils.

Only part of a soil survey is done when the soils have been named, described, and delineated on the map, and the laboratory data and yield data have been assembled. The mass of detailed information then needs to be organized in a way that it is readily useful to different groups of readers, among them farmers, ranchers, managers of woodland, engineers, and homeowners. Grouping soils that are similar in suitability for each specified use is the method of organization commonly used in the soil survey reports. On the basis of yield and practice tables and other data, the soil scientists set up trial groups and test them by further study and by consultation with farmers, agronomists, engineers, and others. Then, the scientists adjust the groups according to the results of their studies and consultation. Thus, the groups that are finally evolved reflect up-to-date knowledge of the soils and their behavior under present methods of use and management.

General Soil Map

After study of the soils in a locality and the way they are arranged, it is possible to make a general map that shows several main patterns of soils, called soil associations. Such a map is the colored map in the back of this report. Each association, as a rule, contains a few major soils and several minor soils, in a pattern that is characteristic though not strictly uniform.

The soils within any one association are likely to differ from each other in some or in many properties; for example, slope, depth, stoniness, or natural drainage. Thus, the general soil map shows, not the kind of soil at any particular place, but patterns of soils, in each of which there are several different kinds of soils.

Each soil association is named for the major soil series in it, but as already noted, soils of other series may also be present. The major soils of one soil association may also be present in other associations, but in different patterns.

The general map showing patterns of soils is useful to people who want a general idea of the soils, who want to compare different parts of a county, or who want to know the possible location of good-sized areas suitable for a certain kind of farming or other land use.

Six of the eight soil associations are on uplands, some parts of which are marked with poorly drained depressions. Soil association 7 is on stream terraces, and association 6 is on flood plains. The eight associations are described in the following pages.

1. Marlboro-Faceville association: Nearly level and gently sloping, well-drained soils with a clayey subsoil

This association makes up about 21.5 percent of the county and is on broad, gently sloping plains that are pocketed with many oval and irregularly shaped depressions. One of these depressions is shown in figure 2. The depressions cover about 10 percent of the association, and most of them are 10 to 25 acres in size. Their outlets are poorly defined. The plains are dissected by seven or eight well-defined drains that originate in the association and have short, sloping sides and narrow channels. Figure 3 shows the major soil series in the association and their relation to the landscape.

Marlboro soils, which make up about 35 percent of this association, are common on the plains. They are well

Figure 2.—Marlboro soils on slopes and Grady soils in depressions.

drained and have a grayish, sandy surface layer 8 to 12 inches thick and a yellowish-brown sandy clay subsoil. The Faceville soils make up about 20 percent of the association and are on the plains and on slopes along the drains. They are well drained and have a grayish-brown surface layer less than 12 inches thick and a yellowish-red sandy clay subsoil. Grady soils occupy about 6 percent of the association. They are in depressions, are poorly drained, and have a dark, loamy surface layer 4 to 12 inches thick. Their subsoil is gray, mottled sandy clay or clay.

Minor soils in the association are in the Magnolia, Norfolk, Ruston, Orangeburg, Coxville, and McColl series. The Magnolia, Norfolk, Ruston, and Orangeburg soils occupy about 29 percent of the association; Norfolk soils make up most of this percentage. These four soils have a loamy sand surface layer and are well drained. The poorly drained Coxville and McColl soils and other minor soils make up the rest of the soil association.

About 85 percent of this association is cultivated. Cotton, corn, small grain, and soybeans are the main crops. Hardwood trees grow in small patches along the streams. Generally, the farms are less than 400 acres in size and are

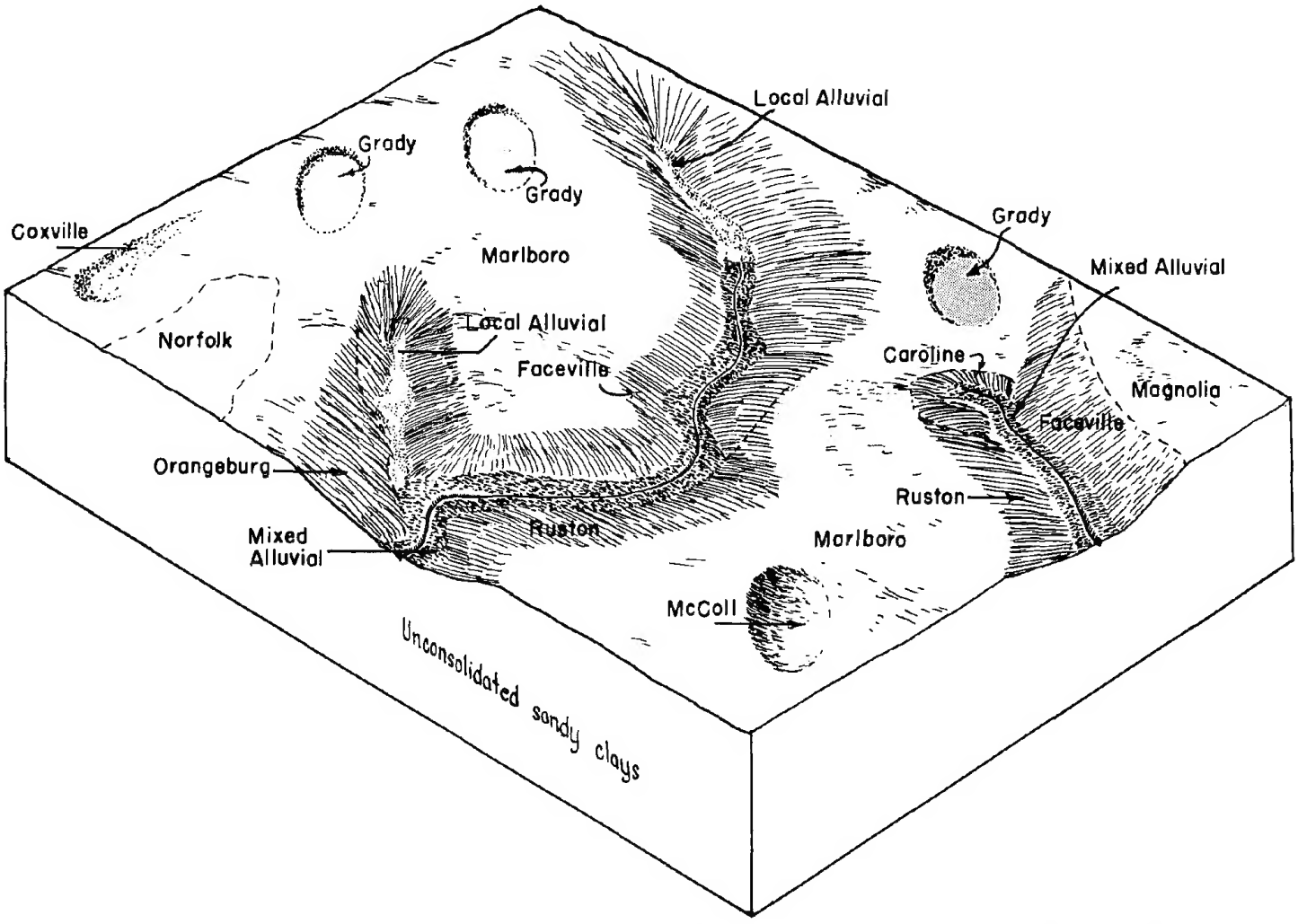

Figure 3.—Soil series in soil association 1 and their relation to the landscape and the underlying material.

operated by their owners. Most are general farms, but more than a dozen are dairy farms.

The soils in this association are likely to erode, but they are productive if they are managed well. Erosion can be controlled by contour cultivation and the use of close-growing crops. Needed in the sloping areas are terraces that have outlets protected by a cover of growing plants.

Doves and quail are plentiful in this association and are extensively hunted during hunting season.

2. Lakeland-Eustis association: Droughty, nearly level to sloping, sandy soils (of the lower and middle Coastal Plain uplands)

This association is on nearly level to sloping plains that are marked with a few oval depressions. The association is in uplands of the lower and middle Coastal Plain and makes up 18 percent of the county. It consists of eight areas that are adjacent to the main drainageways in the county. These areas are dissected by many short drains that have short sloping sides and narrow bottoms. The oval depressions are very poorly drained; many of them contain water throughout the year because they are below the normal water table and are without natural outlets. These depressions amount to about 10 percent of the association. Figure 4 shows the soil series in the association and their relation to the landscape and the underlying material.

The Lakeland and Eustis soils are on the upland plains and the sloping sides of the drains. Together they make up about 70 percent of the association. The acreage of the Lakeland soils is much larger than that of the Eustis soils. Both are droughty and sandy. The Lakeland soils have a grayish-brown, sandy surface layer over light yellowish-brown, sandy layers that are more than 42 inches thick. The Eustis soils have a dark-brown, sandy surface layer over yellowish-red, sandy layers that are more than 42 inches thick.

Also on the upland plains of this association are Norfolk and Ruston soils. These soils are scattered in small areas and account for about 10 percent of the association. Plummer, Rains, Rutledge, and Portsmouth soils, which account for about 15 percent of the association, occur in the upland depressions. Mixed alluvial land is in the narrow, flat bottoms along the drainageways and amounts to about 5 percent of the association.

About 25 percent of the association is cultivated. Corn, cowpeas, and watermelons are the main crops, and cucumbers are grown on a small acreage. Large areas that were cultivated are now planted to pines.

The farms average 75 to 200 acres in size. Most of them are subsistence farms. Clear Pond, in one of the larger depressional areas, is being developed as a recreational area

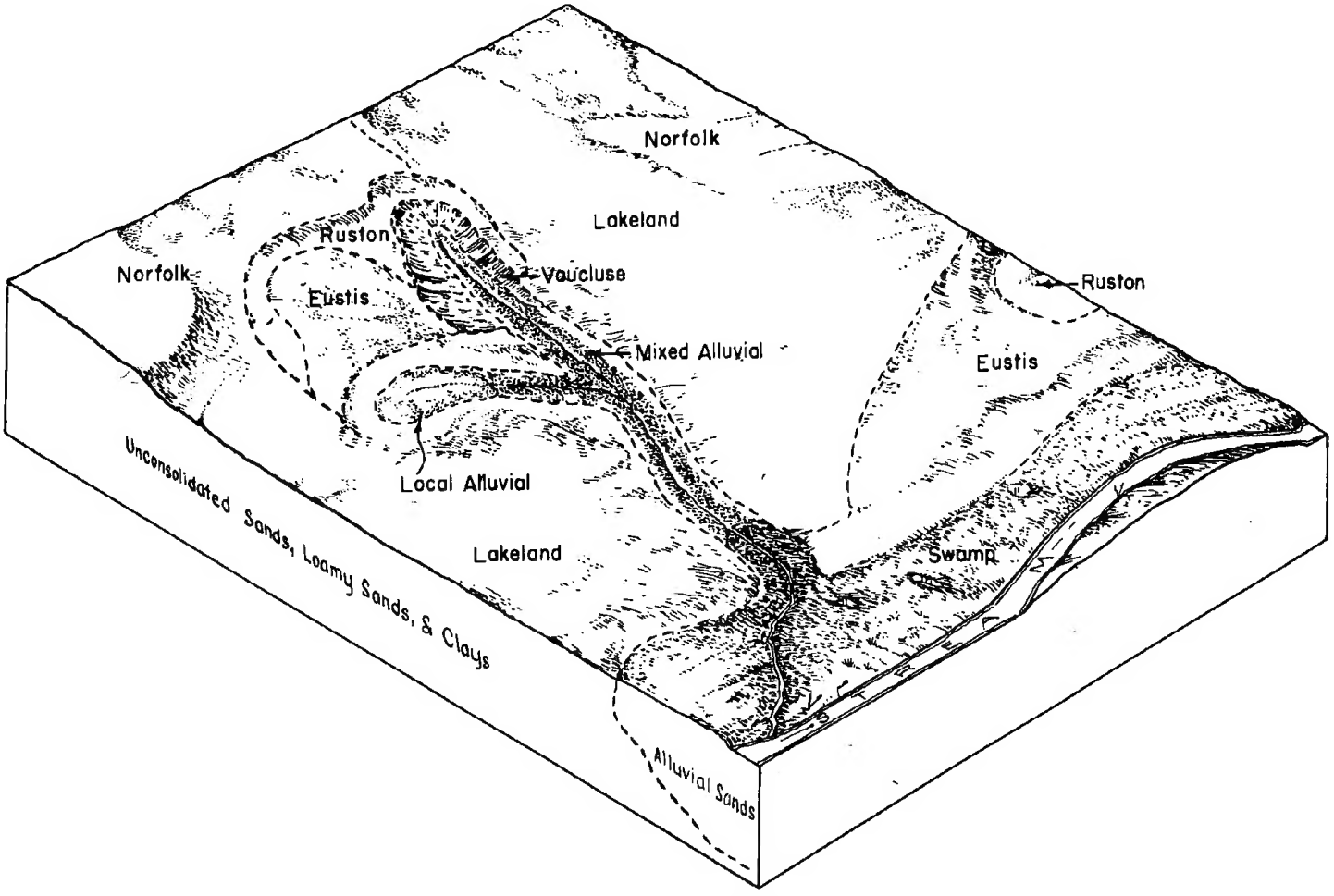

Figure 4.—**Soil series in soil association 2 and their relation to the landscape and underlying material.**

for swimming, skiing, boating, and fishing. Some of the depressional areas that contain water throughout the year provide fair duck shooting and some fishing. Quail are numerous and are hunted in season in most of the association.

The areas suitable for cultivation are on the gently sloping plains and are small and scattered. The larger areas are droughty, sandy, and best suited to pasture or pine trees. A few of the depressions would be well suited to cultivation or pasture if they were drained and cleared.

3. Norfolk-Goldsboro-Rains association: Well-drained to poorly drained, nearly level soils with a sandy clay loam subsoil

This association consists of broad, nearly level to undulating plains that contain a few large, egg-shaped depressions, or Carolina bays, and many irregularly shaped, flat, somewhat poorly drained and poorly drained areas. A few of the poorly drained areas have no drainage outlets. Most of the outlets are poorly defined, but a few well-defined drainageways originate at the outer edges of the plains. Gently sloping and sloping areas are adjacent to most streams. This association occupies 32 percent of the county. It is mainly in the southern and central parts of the county, but three comparatively small areas occur in the eastern part. Figure 5 shows the soil series in this association and their relation to the landscape and underlying material.

The Norfolk soils amount to about 24 percent of this association. They are at the highest elevations of the plains and are well drained. They have a dark-gray or dark grayish-brown surface layer. Below a depth of 14 to 30 inches, the subsoil is a yellowish-brown sandy clay loam.

The Goldsboro soils make up about 16 percent of the association and commonly occur on the undulating plains. These soils are moderately well drained. They have a dark-gray to dark grayish-brown loamy sand surface layer that, below a depth of 14 to 30 inches, is underlain by a yellowish-brown sandy clay loam subsoil that is mottled with gray in the lower part. In places the subsoil is sandy loam.

The Rains and Coxville soils occupy about 30 percent of this association and are in the Carolina bays and other depressions. They are poorly drained. The Rains soils have a black to very dark gray loamy sand surface layer over a lightly mottled subsoil of gray, brownish-yellow, and pale-olive sandy clay loam. The Coxville soils have a

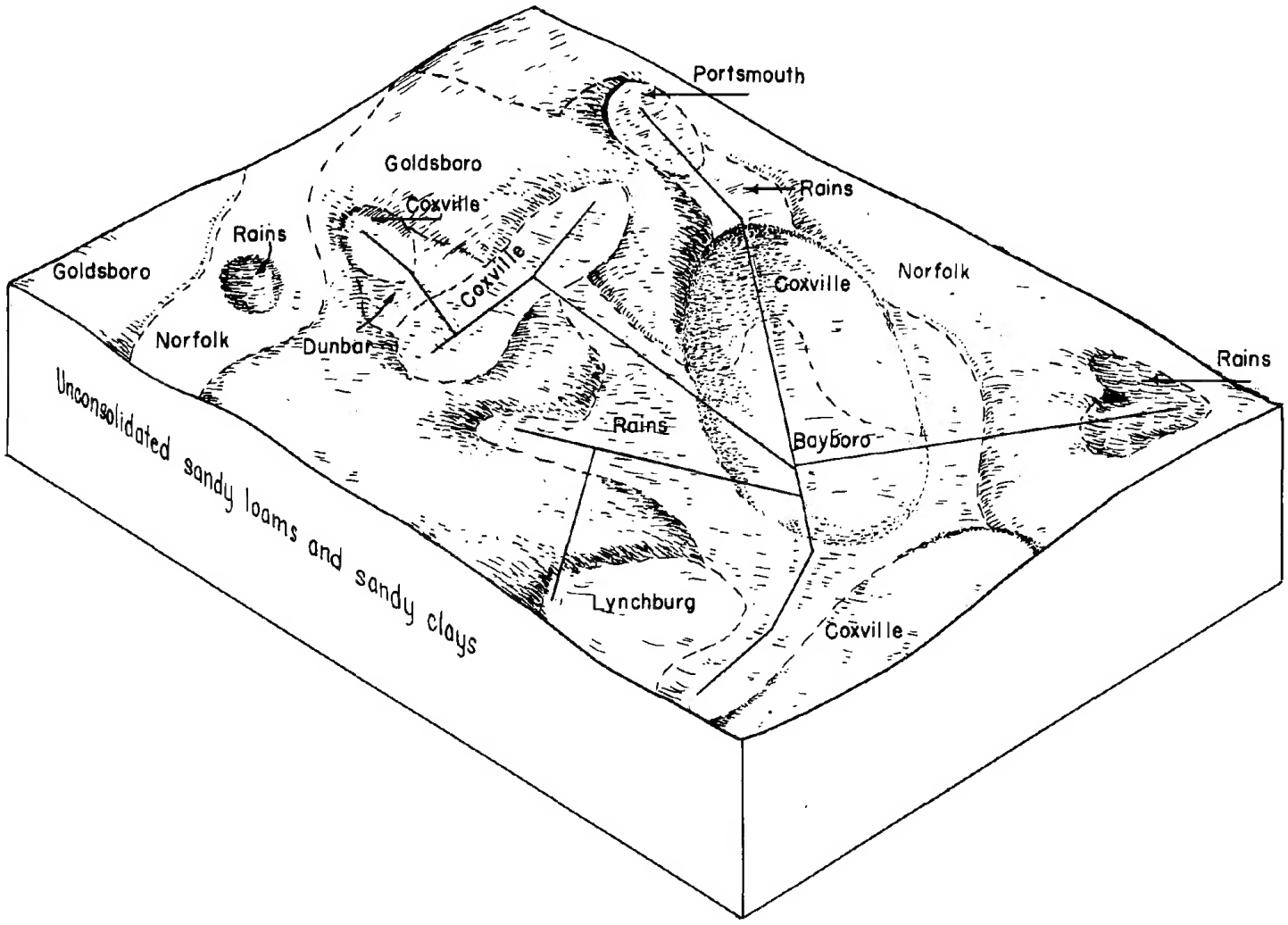

Figure 5.—**Soil series in soil association 3 and their relation to the landscape and underlying material.**

black to very dark gray sandy loam to fine sandy loam surface layer over a gray clay subsoil that is mottled with yellow.

Minor soils in this association are in the Portsmouth, Plummer, Rutledge, Bayboro, Lynchburg, Dunbar, Ruston, and Lakeland series. These soils are in widely scattered, small areas that make up the remaining 30 percent of the association.

The broad, nearly level undulating plains are well suited to cultivation and are farmed extensively. The Carolina bays and irregularly shaped depressions are mostly in trees, but small scattered areas have been cleared and drained and are used for improved pasture. Cotton, corn, small grain, and soybeans are the common crops. Generally, the farms are larger than 200 acres and are operated by their owners. Most are general farms, though there are five dairy farms. Livestock are raised on many farms.

This soil association is well suited to quail, doves, and rabbits. Most of the association is leased for hunting. Many people from out of the State hunt quail. A few deer range the association.

4. Lynchburg-Goldsboro-Rains association: Moderately well drained to very poorly drained soils of the flatwoods; loamy sand surface layer and sandy clay loam subsoil

This association consists of broad flats and gently undulating areas. In the broad flats are very poorly defined drains and many scattered depressions. A few large Carolina bays occur. This association occupies about 7 percent of the county and is in the eastern part. Figure 6 shows the soil series in this association and their relation to the landscape and underlying material.

About 80 percent of this association is made up of Lynchburg, Goldsboro, and Rains soils. The Goldsboro soils dominate in the low undulating areas and occupy about 20 percent of the association. They have a very dark gray to dark grayish-brown loamy sand surface layer that ranges from 12 to 30 inches in thickness. It is underlain by a light yellowish-brown sandy clay loam subsoil that is mottled with gray in the lower part.

The Lynchburg and Rains soils occupy the broad flats and some depressions and together make up about 60 percent of the association. They have a black to very dark

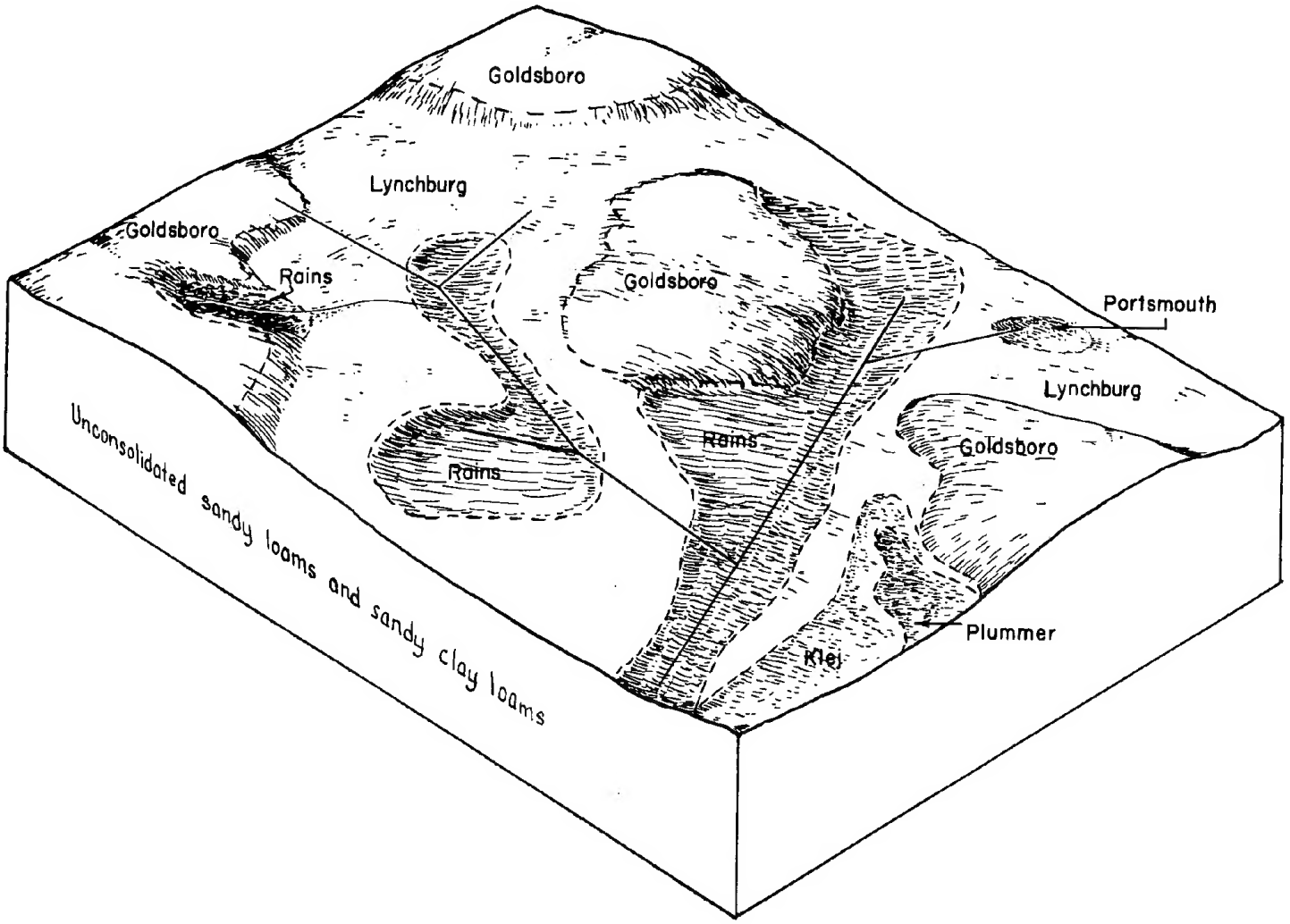

Figure 6.—Soil series in soil association 4 and their relation to the landscape and underlying material.

grayish-brown surface layer that is as much as 30 inches thick and is underlain by a mottled light yellowish-brown to gray sandy clay loam subsoil.

In widely scattered areas are the Portsmouth, Coxville, Plummer, Klej, and Norfolk soils. They make up the remaining 20 percent of this association.

About 20 percent of this association is gently undulating, is well suited to cultivation, and is cultivated intensely. Most of the broad flats are in trees, but some are cultivated. They occupy about 60 percent of this association. The remaining 20 percent consists of wooded depressions.

Quail are plentiful in this soil association, but they are not hunted much because the woods are too thick. Deer are fairly plentiful and are hunted in season.

5. Portsmouth-Lakeland association: Large Carolina bays surrounded by low sand ridges

This association has many large Carolina bays that are surrounded by low sand ridges. The Carolina bays are large, flat, and very poorly drained. The outlets from most of them are poorly defined, and some bays do not have any outlets. The Carolina bays occupy about two-thirds of the association. The low, narrow ridges surrounding them are nearly level to gently sloping and consist of droughty sand. This association occupies about 5.5 percent of the county and occurs in the northeastern and southeastern parts. Figure 7 shows the soil series in this association and their relation to the landscape.

Portsmouth and Lakeland soils occupy about 70 percent of this association. The Portsmouth soils in the Carolina bays have a surface layer that consists of 7 to 20 inches of black loam to sandy loam. The subsoil is mottled gray sandy clay. The Lakeland soils are on ridges. Their surface layer consists of dark-gray to grayish-brown sand or loamy sand 5 to 7 inches thick. It is underlain by a pale-brown to light yellowish-brown sand to loamy sand subsoil that is 30 to 60 inches thick.

The Norfolk, Ruston, Rains, Plummer, Rutlege, and Eustis soils are widely distributed and make up the remaining 30 percent of this association.

Only a small part of the sandy, droughty ridges is cultivated. Most of the ridges have been cleared and have been planted to trees. The poorly drained bays are mainly in cypress and gum, but there are some pines.

Less than 10 percent of this association is cultivated. The farms are larger than 200 acres. Those that are in use are farmed by tenants. Cotton, corn, and soybeans are the main crops. Because most of the soils on uplands are

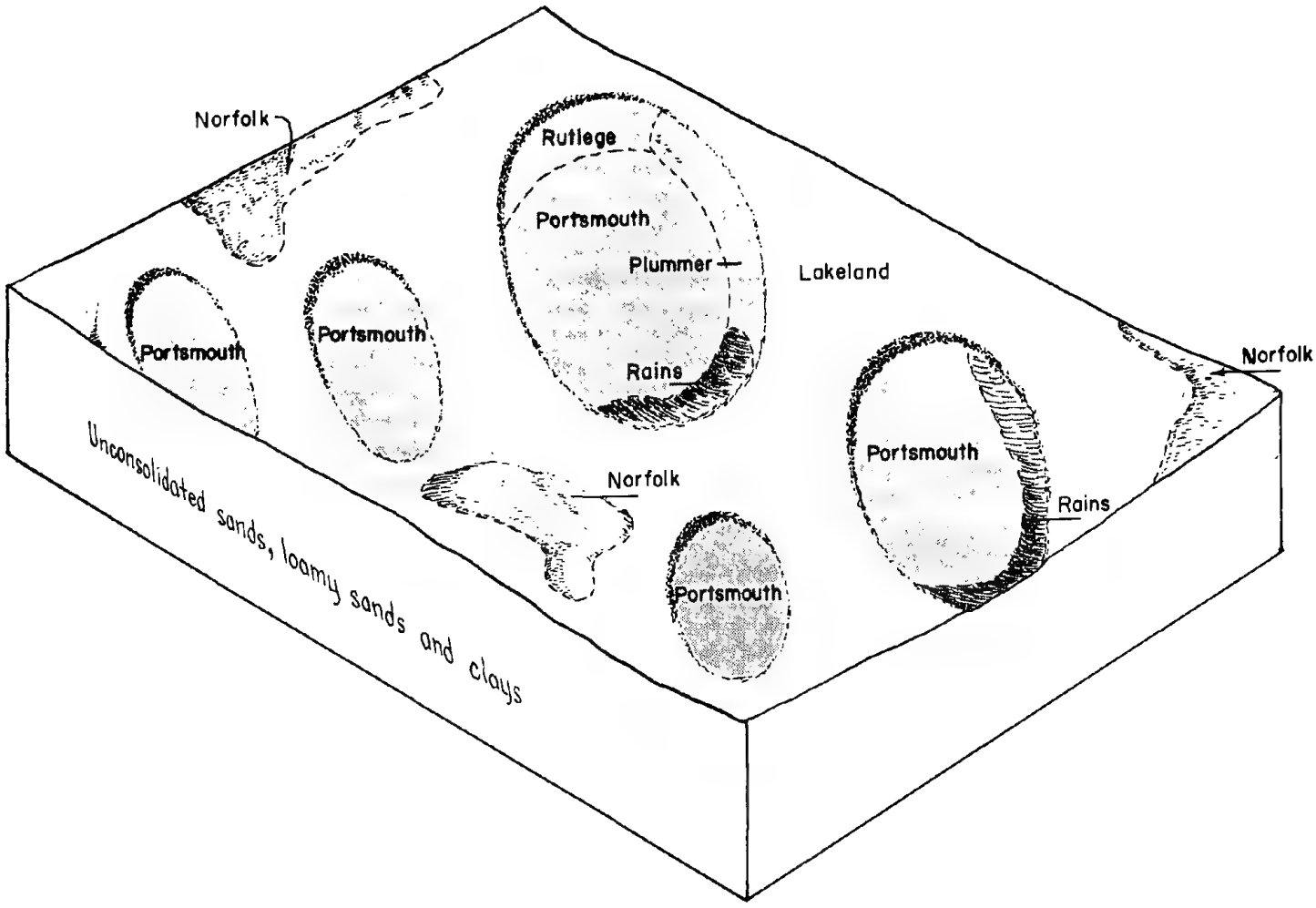

Figure 7.—Soil series in soil association 5 and their relation to the landscape and underlying material.

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sandy, droughty, and low in fertility, they have been planted to pines. They are well suited to this use.

Some of the depressional areas contain water throughout the year and provide duck shooting. Quail are plentiful and are hunted extensively.

6. Alluvial land-Swamp association: Very poorly drained soils of the stream flood plains

This association is made up primarily of very poorly drained soils that occur throughout the county in narrow strips along the major streams. It is covered with a dense growth of hardwoods and water-tolerant plants. The association occupies about 11 percent of the county. Figure 8 shows the soil series in this association and their relation to the landscape and underlying material.

Alluvial land and Swamp make up this association. These land types are very poorly drained throughout the year and are frequently flooded. Their soils consist of alluvial materials that were washed from soils of the Coastal Plain. These materials vary greatly within short distances in texture, color, and thickness of layers.

This soil association is in forest and has little or no agricultural value. The trees are mostly gum, cypress, water oak, and bay, but there are a few pines, waxmyrtle, small native bushes, and water-tolerant plants.

The streams in this association contain many kinds of fish, and they are fished extensively. Squirrels and ducks are also plentiful.

7. Wahee-Izagora-Leaf association: Moderately well drained to poorly drained soils on stream terraces

This soil association is on long, narrow, nearly level stream terraces. Most of the association is on the terraces that border the Edisto River along the northern and eastern boundaries of the county, but a small area is along the Little Salkehatchie River in the southeastern part. The association amounts to about 4 percent of the county. (See figure 8, which shows the soil series in this association and their relation to the landscape and underlying material.)

The Wahee soils occupy about 25 percent of this soil association and are moderately well drained and somewhat poorly drained. They have a very dark gray to grayish-brown sandy loam surface layer over a mottled light yellowish-brown, firm sandy clay or clay subsoil.

The Izagora soils, which occupy about 20 percent of the association, are moderately well drained to somewhat

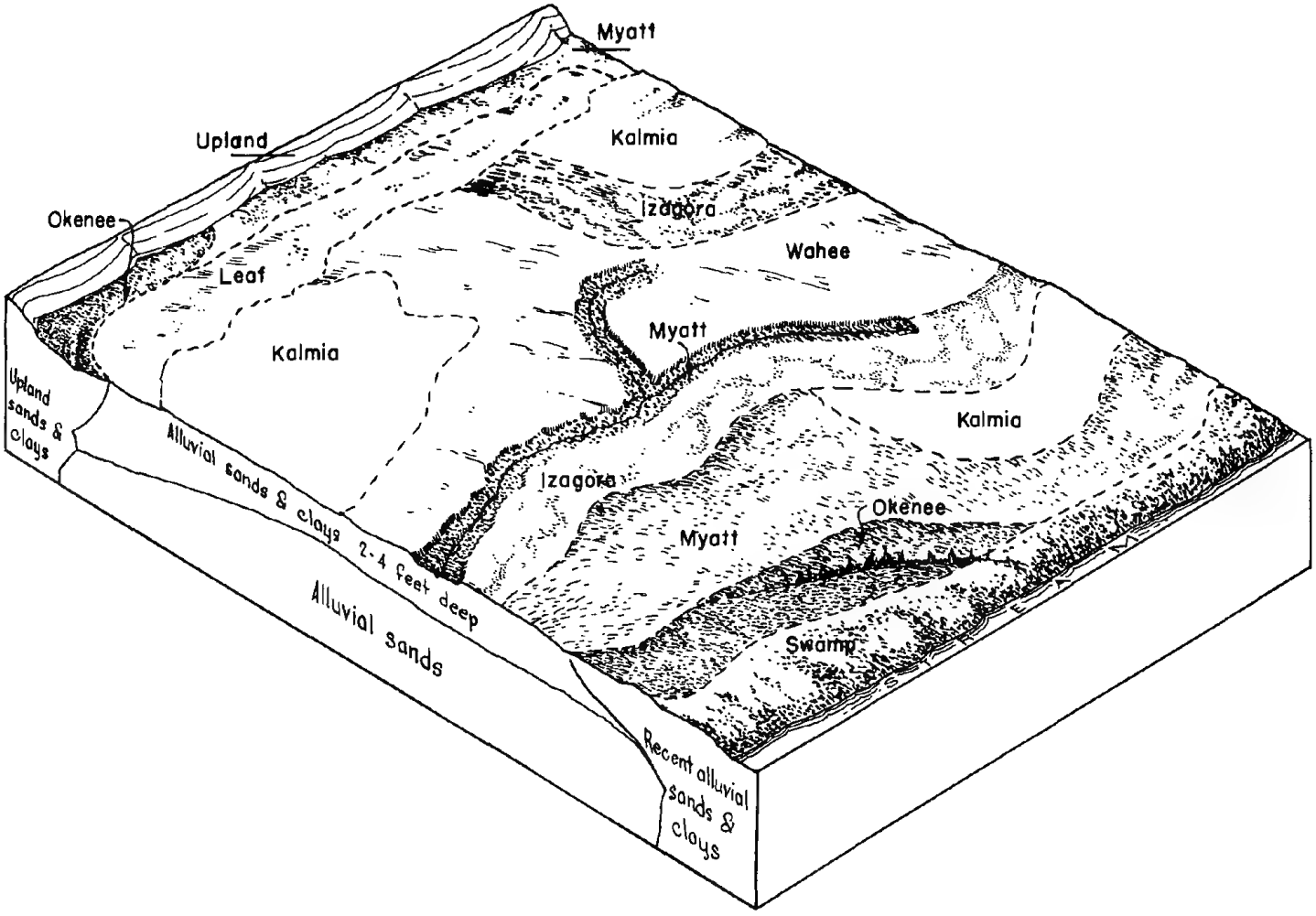

Figure 8.—**Soil series and land types in soil associations 6 and 7 and their relation to the landscape and underlying material.**

poorly drained. Their surface soil is very dark gray to grayish brown. It is underlain by a subsoil of mottled light yellowish-brown sandy clay loam.

The Leaf soils make up about 20 percent of the association. These soils are poorly drained. They have a gray to black loamy sand to clay loam surface layer and a mottled gray sandy clay to clay subsoil.

A considerable acreage of Myatt soils is also in this association. These soils are poorly drained. Their surface layer of dark-gray to black loamy sand is underlain by a mottled gray sandy clay loam subsoil. The rest of the association consists of Kalmia, Plummer, Okenee, Lakeland, and Eustis soils.

About 5 percent of this association is cultivated. About 30 percent was once cleared and cultivated but is now idle or has been recently planted to pines. About 90 percent is in trees. Although many of the soils are suitable for cultivation, the hazard of occasional overflow from adjacent streams limits their suitability for farming.

8. Lakeland-Vaucluse-Norfolk association: Gently sloping to moderately steep, sandy soils

This association consists mainly of gently sloping hilltops, sloping to moderately steep side slopes, narrow draws, and small, narrow stream bottoms. It occupies less than 1 percent of the county and is in the northwestern part. Several small drainageways originate in the association. Figure 9 shows the soil series in this association and their relation to the landscape and underlying material.

The Lakeland soils, which make up about 35 percent of this association, occupy the gently sloping hilltops and some sloping side slopes. They are excessively drained. They have a dark-gray to grayish-brown, sandy surface layer and a light yellowish-brown, sandy subsoil that is 30 to 60 inches thick.

The Vaucluse soils occupy about 20 percent of the association. These soils are on side slopes that are generally sloping to moderately steep but are gently sloping in a few small areas. They are shallow and well drained. They have a dark grayish-brown loamy sand or sand surface layer over a slightly cemented, firm, red sandy clay loam subsoil.

The Norfolk soils make up about 20 percent of the association and are on gently sloping hilltops. They are well drained. Their surface layer consists of dark grayish-brown loamy sand and sand that is 15 to 30 inches thick and is underlain by yellowish-brown sandy clay loam.

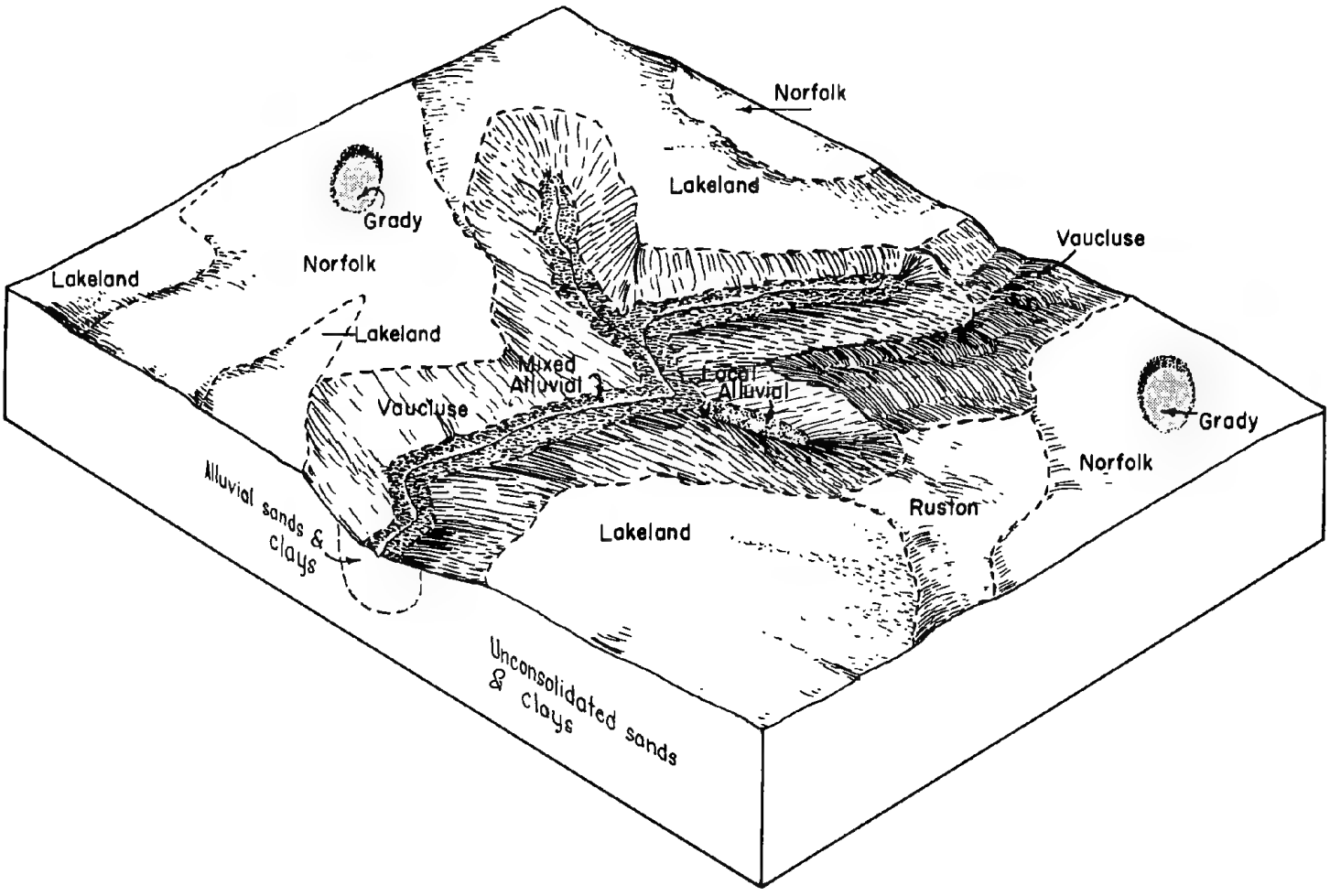

Figure 9.—Soil series in soil association 8 and their relation to the landscape and underlying material.

Also in this association, and accounting for 25 percent of its area, are Ruston, Eustis, and Orangeburg soils, Local alluvial land, Mixed alluvial land, and Swamp.

The soils on gently sloping hilltops occupy about 40 percent of this association and are suitable for farming. Not suitable for farming is about 35 percent of the association that is steep and susceptible to erosion or is droughty and low in fertility. Some areas that have been cultivated are now in pasture or are planted to pine trees. Wet bottom land makes up about 20 percent of the association. Its natural cover is mostly gum, but there are a few pine trees and native shrubs. This wet bottom land is little used for farming, except in small cleared areas that are in pasture.

Descriptions of the Soils

This section describes the soil series (groups of soils) and single soils (mapping units) of Bamberg County. The acreage and proportionate extent of each mapping unit are given in table 1.

The procedure in this section is first to describe the soil series, and then the mapping units in that series. Thus, to get full information on any one mapping unit, it is necessary to read the description of that unit and also the description of the soil series to which it belongs. As mentioned in the section "How Soils Are Mapped and Classified," not all mapping units are members of a soil series. Local alluvial land and Swamp are miscellaneous land types and do not belong to a soil series but, nevertheless, are listed in alphabetic order along with the soil series.

Following the name of each mapping unit, there is a symbol in parentheses. This symbol identifies the mapping unit on the detailed soil map. Listed at the end of each description of a mapping unit are the capability unit and the woodland suitability group in which the mapping unit has been placed. The page on which each capability unit and woodland group is described can be found readily by referring to the "Guide to Mapping Units" at the back of the report.

Soil scientists, engineers, students, and others who want detailed descriptions of soil series should turn to the section "Formation and Classification of Soils." Many terms used in the soil descriptions and other sections of the report are defined in the Glossary.

Bayboro Series

The Bayboro series consists of nearly level, very poorly drained, low-lying soils on uplands of the Coastal Plains. These soils have a black loam surface layer and a heavy, gray silty clay to clay subsoil. They are strongly acid, high in organic-matter content, and medium in natural fertility.

The Bayboro soils occur mainly with the Portsmouth, Coxville, and Rains soils. They are finer textured than the Portsmouth soils and have a firmer and more plastic subsoil. Bayboro soils are finer textured, darker, and more poorly drained than the Coxville and Rains soils and have a much thicker surface layer and a more plastic subsoil.

These soils are widely scattered and have a small total acreage. They occur in the Carolina bays of the central, southwestern, and southern parts of the county. Trees cover the entire acreage, and water-tolerant bushes and grasses are abundant in most areas. The common trees are cypress, blackgum, and water-tolerant oaks, and there are a few scattered pines.

Cultivation is severely limited by wetness and by a lack of suitable outlets for drainage.

Bayboro loam (Bo).—This soil of the Carolina bays is deep and very poorly drained. Its main horizons are—

0 to 8 inches, black, friable loam.
8 to 11 inches, very dark gray, friable loam.
11 to 39 inches, gray silty clay or clay with a few yellowish-brown mottles; plastic when wet.
39 to 50 inches, gray silty clay loam; sticky and plastic when wet.

The black surface layer ranges from 8 to 20 inches in thickness. The subsoil ranges from heavy sandy clay to silty clay. In places there are no mottles. Areas of Portsmouth and Coxville soils that are too small to be mapped separately are included with this soil.

This soil has very slow surface runoff and may be ponded for long periods unless it is drained. Infiltration and permeability are very slow, and available moisture capacity is high. Although organic-matter content is high and natural fertility is medium, this soil responds well to fertilization if it is adequately drained. To reduce the very strong acidity in fields that are cultivated or pastured, lime should be applied in amounts indicated by soil tests.

Disposing of excess water is the main problem, but in most places adequate outlets are not available. Drained areas are suited to corn, soybeans, and a few vegetable crops. Pines and desirable hardwoods grow well. Ponds can be dug in many places. (Capability unit IIIw–2; woodland suitability group 13)

Caroline Series

The Caroline series consists of moderately deep or deep, well-drained soils that are slowly permeable and medium acid to strongly acid. These soils developed in beds of sandy clay on the middle and upper Coastal Plain. They have a grayish-brown surface layer. Their subsoil is yellowish-red or red, firm sandy clay that is mottled with yellowish brown in the lower part. Slopes range from 2 to 10 percent.

The Caroline soils commonly adjoin, and in some respects resemble, the Ruston, Faceville, Magnolia, and Vaucluse soils, but they are finer textured than those soils and have stronger blocky structure in the subsoil. Caroline soils have a less friable subsoil than the Faceville, Ruston, and Magnolia soils and are not so red as the Magnolia. Neither are they so hard when dry nor so firm when wet as the Vaucluse soils.

Only about 0.4 percent of the county is Caroline soils. Small areas of these soils are scattered throughout the western part of the county, northwest and south of Denmark. The suitability of these soils for crops is limited by low to medium fertility and by the slowly permeable, firm subsoil. The native vegetation consisted of mixed stands of pines and hardwoods, principally hickory and oak. Most of the acreage has been cleared and is cultivated, pastured, or idle.

Caroline loamy sand, 6 to 10 percent slopes, eroded (CaC2).—This eroded soil of the Coastal Plain uplands is firm and clayey. Its main horizons are—

0 to 7 inches, grayish-brown loamy sand.
7 to 24 inches, yellowish-red, firm, sticky sandy clay.
24 to 28 inches, yellowish-red, firm sandy clay mottled with brownish yellow.
28 to 45 inches, mottled yellowish-brown, dark-red, light olive-brown, and reddish-yellow, friable sandy clay loam.

The surface layer ranges from dark grayish brown to reddish yellow in color and from 4 to 10 inches in thickness. In a few severely eroded places, the plow layer consists of the original surface layer mixed with the upper part of the subsoil. The subsoil is generally yellowish red, but it ranges from red to yellowish brown. In most places the depth to mottling ranges from 15 to 24 inches, but in some places the mottles are absent or faint in the

TABLE 1.—*Approximate acreage and proportionate extent of soils*

Soil	Area	Extent	Soil	Area	Extent
	Acres	*Percent*		*Acres*	*Percent*
Bayboro loam	1,351	0.5	McColl loam	425	0.2
Caroline loamy sand, 2 to 6 percent slopes	196	.1	McColl sandy loam	525	.2
Caroline loamy sand, 2 to 6 percent slopes, eroded	346	.1	Mixed alluvial land	6,380	2.5
Caroline loamy sand, 6 to 10 percent slopes, eroded	497	.2	Myatt loamy sand	3,535	1.4
Coxville fine sandy loam	5,867	2.3	Norfolk loamy fine sand, 0 to 2 percent slopes	1,706	.7
Coxville sandy loam	14,847	5.9	Norfolk loamy fine sand, 2 to 6 percent slopes	729	.3
Dunbar fine sandy loam	664	.3	Norfolk loamy fine sand, thick surface, 0 to 2 percent slopes	1,876	.7
Dunbar sandy loam	1,888	.7	Norfolk loamy fine sand, thick surface, 2 to 6 percent slopes	907	.4
Eustis loamy sand, 0 to 6 percent slopes	2,763	1.1	Norfolk loamy sand, 0 to 2 percent slopes	6,236	2.5
Eustis loamy sand, 6 to 10 percent slopes	874	.4	Norfolk loamy sand, 2 to 6 percent slopes	5,951	2.4
Eustis loamy sand, 10 to 15 percent slopes	427	.2	Norfolk loamy sand, 2 to 6 percent slopes, eroded	580	.2
Eustis sand, 0 to 6 percent slopes	3,138	1.2	Norfolk loamy sand, 6 to 10 percent slopes, eroded	199	.1
Eustis sand, 6 to 10 percent slopes	633	.3	Norfolk sand, thick surface, 0 to 2 percent slopes	15,040	5.9
Eustis sand, terrace, 0 to 6 percent slopes	742	.3	Norfolk sand, thick surface, 2 to 6 percent slopes	8,269	3.3
Faceville loamy sand, 2 to 6 percent slopes	1,453	.6	Norfolk sand, thick surface, 6 to 10 percent slopes	715	.3
Faceville loamy sand, 2 to 6 percent slopes, eroded	1,568	.6	Okenee loam	814	.3
Faceville loamy sand, 6 to 10 percent slopes, eroded	619	.2	Orangeburg loamy sand, 0 to 2 percent slopes	105	(1)
Gilead loamy sand, 2 to 6 percent slopes	367	.1	Orangeburg loamy sand, 2 to 6 percent slopes	483	.2
Goldsboro loamy sand	7,377	2.9	Orangeburg loamy sand, 2 to 6 percent slopes, eroded	136	.1
Goldsboro loamy sand, thick surface	8,131	3.2	Orangeburg loamy sand, 6 to 10 percent slopes, eroded	390	.2
Grady loam	1,286	.5	Plummer loamy sand	2,629	1.0
Grady loam, thin surface	419	.2	Portsmouth loam	8,789	3.5
Izagora sandy loam, sandy substratum	1,449	.6	Portsmouth sandy loam	4,375	1.7
Kalmia loamy sand	318	.1	Rains loamy sand	18,615	7.4
Klej loamy sand	1,789	.7	Ruston loamy sand, 0 to 2 percent slopes	727	.3
Klej loamy sand, terrace	1,488	.6	Ruston loamy sand, 2 to 6 percent slopes	2,593	1.0
Lakeland sand, 0 to 6 percent slopes	17,306	6.8	Ruston loamy sand, 2 to 6 percent slopes, eroded	1,884	.7
Lakeland sand, 6 to 10 percent slopes	3,397	1.3	Ruston loamy sand, 6 to 10 percent slopes	408	.2
Lakeland sand, 10 to 15 percent slopes	593	.2	Ruston loamy sand, 6 to 10 percent slopes, eroded	1,536	.6
Lakeland sand, moderately shallow, 0 to 2 percent slopes	9,989	3.9	Ruston loamy sand, thick surface, 0 to 2 percent slopes	766	.3
Lakeland sand, moderately shallow, 2 to 6 percent slopes	5,283	2.1	Ruston loamy sand, thick surface, 2 to 6 percent slopes	2,450	1.0
Lakeland sand, moderately shallow, 6 to 10 percent slopes	1,587	.6	Ruston loamy sand, thick surface, 6 to 10 percent slopes	956	.4
Lakeland sand, moderately shallow, 10 to 15 percent slopes	247	.1	Rutlege loamy sand	1,248	.5
Lakeland sand, moderately shallow, terrace, 0 to 4 percent slopes	1,437	.6	Swamp	18,511	7.3
Lakeland sand, terrace, 0 to 6 percent slopes	1,152	.5	Vaucluse loamy sand, 6 to 10 percent slopes, eroded	932	.4
Leaf clay loam, thin surface	2,116	.8	Vaucluse loamy sand, 15 to 25 percent slopes, eroded	469	.2
Leaf loamy sand, sandy substratum	2,308	.9	Vaucluse sand, thick surface, 6 to 10 percent slopes	729	.3
Local alluvial land	960	.4	Vaucluse soils, 10 to 15 percent slopes, eroded	920	.4
Lynchburg loamy fine sand	1,815	.7	Wahee sandy loam, sandy substratum	1,870	.7
Lynchburg loamy sand	10,210	4.0	Total	252,800	100.0
Magnolia loamy sand, 2 to 6 percent slopes	644	.3			
Magnolia loamy sand, 2 to 6 percent slopes, eroded	229	.1			
Magnolia loamy sand, 6 to 10 percent slopes, eroded	241	.1			
Marlboro loamy sand, 0 to 2 percent slopes	1,084	.4			
Marlboro loamy sand, 2 to 6 percent slopes	2,969	1.2			
Marlboro loamy sand, 2 to 6 percent slopes, eroded	3,030	1.2			
Marlboro loamy sand, 6 to 10 percent slopes, eroded	298	.1			

[1] Less than 0.05 percent.

upper part of the subsoil. The subsoil ranges from clay to sandy clay and is sandy clay near areas of Ruston, Faceville, or Vaucluse soils. Structure ranges from moderate to strong. Included with this soil are a few areas of Ruston, Faceville, and Vaucluse soils that are too small to be mapped separately.

Although the surface layer is thin, rooting is moderately deep to deep in this soil. A slowly permeable subsoil, however, somewhat retards the development of roots and the movement of air and water. Because infiltration is slow and runoff is rapid, the erosion hazard is moderate to severe. This soil has only medium available moisture capacity and is low in organic-matter content and in natural fertility. Tilth is generally fair, but the soil can be worked within only a narrow range of moisture content. Crops respond fairly well to fertilization and other good management.

This soil is in small areas, mostly on knolls, short slopes, and slope breaks. It is mostly in woods and pasture. Pines reseed naturally if enough seed is available, and many acres have been recently planted to pines. Corn, cotton, small grain, and soybeans are suitable crops if further erosion is held in check. Sericea lespedeza, bahiagrass, and Coastal bermudagrass are suitable for hay or pasture. (Capability unit IIIe–3; woodland suitability group 3)

Caroline loamy sand, 2 to 6 percent slopes (CaB).—This soil is less sloping than Caroline loamy sand, 6 to 10 percent slopes, eroded, and has a thicker surface layer that ranges from 11 to 14 inches in thickness. In addition, less water runs off, infiltration is more rapid, and the available moisture capacity is higher. This soil has low to medium natural fertility and content of organic matter. The erosion hazard is medium.

This soil is in larger areas than Caroline loamy sand, 6 to 10 percent slopes, eroded, and is suited to about the same kind of crops, but it produces higher yields of row crops. (Capability unit IIe–3; woodland suitability group 3)

Caroline loamy sand, 2 to 6 percent slopes, eroded (CaB2).—This eroded soil lies on less sloping, more uniform slopes than Caroline loamy sand, 6 to 10 percent slopes, eroded, and has less surface runoff. Practices of erosion control are easier to establish because the hazard of further erosion is only slight to medium.

This soil is mostly in pasture or cultivated crops. It is better suited to row crops than the more sloping Caroline soil. (Capability unit IIe–3; woodland suitability group 3)

Coxville Series

In the Coxville series are deep, poorly drained soils that developed in beds of sandy clay on the uplands of the lower Coastal Plain. These soils occupy large, irregularly shaped flats or are in oval-shaped depressions that are locally called Carolina bays. The surface layer is generally dark-gray sandy loam, and the subsoil is mottled gray or grayish-brown sandy clay. These soils have a slowly permeable subsoil, are strongly acid or very strongly acid, and are medium in fertility and organic-matter content. Slopes range from 0 to 2 percent.

The Coxville soils lie close to, and in some places adjoin, the Portsmouth, Rains, Lynchburg, Dunbar, and Goldsboro soils. Coxville soils resemble those soils in some ways but have a finer textured subsoil than any of them except the Dunbar. In addition, their subsoil is darker gray than that of the Dunbar and Goldsboro soils, but it is not thick and black like that in the Portsmouth soils. Coxville soils are better drained than the Portsmouth soils.

In many places the Coxville soils lie below and adjacent to the Norfolk and Marlboro soils and can be distinguished from them by comparing surface soils. The surface soil of the Coxville soils is much darker than that of the Norfolk and Marlboro soils. Also close to the Coxville soils in some places are the Grady and McColl soils. Coxville soils are less sticky and more friable than the Grady soils and have a subsoil that contains more prominent red mottles but less kaolin. The subsoil of Coxville soils is gray, and that of the McColl soils is yellowish brown.

The Coxville soils occupy about 8 percent of the county. Large and small areas occur throughout the county, but the largest areas are in the central and southern parts. Most of this acreage is forested, but about 20 percent is used for pasture and crops. Pasture is a better use than crops; drainage is required in areas used for crops. The native vegetation consists of water-loving oak, blackgum, sweetgum, a few cypress, loblolly and longleaf pines, gallberry, and bay bushes.

Coxville sandy loam (Co).—This soil lies in low parts of the Coastal Plain uplands. It is poorly drained and has a dark surface layer. The main horizons are—

0 to 7 inches, dark-gray, friable sandy loam.
7 to 12 inches, gray, friable sandy loam.
12 to 49 inches, gray, firm, sticky sandy clay mottled with yellowish brown and red.

The surface layer is generally 12 to 14 inches thick, but it ranges from 5 to 16 inches in thickness. It ranges from dark gray in forested areas to light gray in cultivated areas. The subsoil ranges from sandy clay to clay and, in some places, is free of mottles.

This soil has slow permeability, slow infiltration, and slow runoff. In undrained areas the water table lies close to the surface during wet periods. In adequately drained areas enough moisture remains in the soil to meet the needs of crops well into dry months. This soil is medium in fertility and organic-matter content and is medium acid to strongly acid. If excess water is removed and controlled by drainage, practically all locally grown crops are suited, but pasture and hay are the best uses. Ordinarily, open ditches or a combination of open ditches and tiling is used to remove excess water. Ponds can be dug in many sites. (Capability unit IIIw–2; woodland suitability group 9)

Coxville fine sandy loam (Cf).—This soil has a profile similar to that of Coxville sandy loam, but its surface layer is finer textured and generally ranges from 10 to 12 inches in thickness. In both soils, permeability, infiltration, and runoff are slow, the water table is high, fertility is medium, and acidity is medium to strong. Included in mapping this soil are a few small areas that have a black loam surface layer 3 or 4 inches thick.

This soil is mostly in the southern part of the county. It is suited to the same kinds of crops as Coxville sandy loam. (Capability unit IIIw–2; woodland suitability group 9)

Dunbar Series

The Dunbar series consists of nearly level, fine-textured soils that developed in beds of sandy clay and clay loam on the uplands of the middle Coastal Plain. These soils are mainly somewhat poorly drained, but in a few places, they are moderately well drained. They are strongly acid, high in natural fertility, and moderate in available moisture capacity. Slopes range from 0 to 2 percent.

Dunbar soils adjoin, and in some ways resemble, the Coxville, Grady, Marlboro, McColl, Goldsboro, Lynchburg, and Rains soils. Dunbar soils adjoin the more poorly drained Coxville and Grady soils in many places and can be distinguished from them by a lighter colored surface layer and a subsoil that is not so gray and is yellower in the upper part. Dunbar soils are similar to the Marlboro soils in texture but are more poorly drained and are mottled in the subsoil. They are similar to the McColl soils in drainage and in consistence, but their subsoil is mottled with gray in contrast to the strong brown that is dominant in McColl soils at a depth of 13 to 30 inches. Although Dunbar soils adjoin Goldsboro and Lynchburg soils in only a few places, they closely resemble them in color. The finer textured subsoil of Dunbar soils distinguishes them from the Goldsboro and Lynchburg soils. Dunbar soils are better drained and finer textured than Rains soils and are lighter colored in the surface soil.

Dunbar soils are widely distributed but make up only about 1 percent of the county. These soils have been cleared of their native hardwoods and pines. Most of the acreage is in cultivated crops, but some is in pasture. The soils have a thick root zone, and they respond well to fertilization. They are well suited to corn and other crops that need a large amount of moisture.

Dunbar sandy loam (Dn).—This soil of the Coastal Plain upland is deep and generally somewhat poorly drained. Its main horizons are—

0 to 9 inches, very dark grayish-brown sandy loam.
9 to 26 inches, pale-brown to light grayish-brown sandy clay mottled with brownish yellow and gray.
26 to 67 inches, gray sandy clay mottled with brownish yellow and red.

The surface layer ranges from 7 to 18 inches in thickness and from dark gray to very dark grayish brown in color. In some places drainage is moderately good and the gray color is prominent at a depth of 24 to 30 inches. The drainage of this soil is between that of the well-drained Marlboro soils and that of the poorly drained Coxville soils. Small areas of Marlboro and Coxville soils are included in mapping the Dunbar sandy loam.

This soil has slow runoff, moderately slow infiltration, and medium available moisture capacity. During wet periods the water table frequently rises to within 24 to 36 inches of the surface. In many places tilth and the root zone can be improved by artificial drainage. Small areas of this soil can be sufficiently drained by draining the adjacent soils.

This soil has a small total acreage in the county. It responds well to fertilization and other good management. It is best suited to crops that require a large amount of moisture, but all crops commonly grown in the county are suited. (Capability unit IIw–2; woodland suitability group 7)

Dunbar fine sandy loam (Db).—This soil is finer textured throughout its entire profile than Dunbar sandy loam and has slower infiltration and permeability and slightly poorer drainage. This poorer drainage is indicated by the olive color of the subsoil.

Most of this soil occurs in the southern part of the county near Ehrhardt, but a few areas are widely scattered elsewhere. (Capability unit IIw–2; woodland suitability group 7)

Eustis Series

The Eustis series consists of deep, excessively drained soils that developed in beds of sands and loamy sands on the upper and middle Coastal Plain. Brown sand or loamy sand extends from the surface to a depth of 3 feet or more. These soils are droughty, low in fertility, and strongly acid or very strongly acid.

The Eustis soils adjoin, and in some ways resemble, the Lakeland, Ruston, Norfolk, and Vaucluse soils. They resemble the Lakeland soils in texture but are browner throughout. Eustis soils are similar to the Ruston soils in color but are much coarser textured below the surface layer. They are browner and much coarser textured than the Norfolk soils. Although they are similar to the Vaucluse soils in color, Eustis soils lack the firm, hard or weakly cemented subsoil of those soils.

The Eustis soils are widely scattered throughout the central, northern, and western parts of the county, but most areas are in a narrow band along the Edisto River and Lemon Creek. Their total acreage amounts to about 3.5 percent of the county. The native vegetation was longleaf pine and an understory of blackjack oak and a few other low-quality hardwoods. The Eustis soils are not farmed intensively, and much of their acreage has been abandoned and allowed to grow up naturally to broomstraw, pines, or undesirable hardwoods. Recently, many areas have been planted to slash pine and loblolly pine. Because these soils are low in available moisture capacity and in fertility, their use for crops is greatly limited.

Eustis loamy sand, 0 to 6 percent slopes (EmB).—This is a deep, excessively drained soil. Its main horizons are—

0 to 8 inches, very dark grayish-brown, loose loamy sand.
8 to 47 inches, yellowish-red, very friable loamy sand.
47 to 60 inches, yellowish-red grading to yellowish-brown, friable sandy clay loam containing some hard, brown concretions.

In most places loamy sand extends from the surface to a depth of 36 to 60 inches, but in a few areas yellowish-red or red sandy loam or sandy clay loam is within 30 to 36 inches of the surface. The surface layer ranges from 5 to 8 inches in thickness. Its color depends on the content of organic matter and ranges from very dark grayish brown to brown. The subsoil is generally yellowish red but ranges to strong brown in areas grading toward Lakeland soils. Some small areas of Eustis sand, 0 to 6 percent slopes, are included in the areas mapped. Also included are areas of Ruston soils that are too small to be mapped separately.

Permeability is very rapid in this soil, surface runoff is slow, and infiltration is rapid. The available moisture capacity is low. Organic matter and applied fertilizer are readily leached out and, consequently, the supply of plant

nutrients is low. Because of the low available moisture content, this soil is not well suited to crops that require a good supply of moisture during summer. Also, soil blowing is severe at times in cultivated areas.

This soil has a small total acreage and occurs mostly in small areas. Many areas have been reforested to pines, but about half the acreage is in cultivated crops or pasture. Bahiagrass, Coastal bermudagrass, and sericea lespedeza are suitable pasture crops. Cotton, corn, small grain, and soybeans are grown, but they produce low yields. Good practices are applying fertilizer frequently in small amounts and planting and turning under cover crops frequently to supply organic matter. (Capability unit IIIs–1; woodland suitability group 1)

Eustis loamy sand, 6 to 10 percent slopes (EmC).—This sloping soil has slightly more runoff than Eustis loamy sand, 0 to 6 percent slopes, and is more susceptible to erosion. In addition, plant nutrients and organic matter are leached out more readily, and the soil is more droughty.

Most of this soil is wooded. It is best suited to pine trees and to Coastal bermudagrass and other deep-rooted perennial grasses. (Capability unit IVs–1; woodland suitability group 1)

Eustis loamy sand, 10 to 15 percent slopes (EmD).—In this strongly sloping soil the loamy sand is thinner in many places than it is in Eustis loamy sand, 0 to 6 percent slopes. The loamy sand is only 30 to 36 inches thick in some places, but it is as much as 46 inches thick in others.

Erosion, leaching, and droughtiness limit the use of this soil, but on some of the lower slopes, trees can be grown because seepage provides enough moisture. This soil is not suited to cultivated crops. Its best uses are for sericea lespedeza and other deep-rooted perennials and for trees. (Capability unit VIs–1; woodland suitability group 1)

Eustis. sand, 0 to 6 percent slopes (EsB).—This soil differs considerably from Eustis loamy sand, 0 to 6 percent slopes. It developed in thick beds of sand, and its entire profile is sand rather than loamy sand. The surface layer is dark grayish brown to brown. The sand beneath the surface layer ranges from reddish yellow to strong brown and extends to a depth of 42 to 60 inches.

This soil is less fertile than Eustis loamy sand, 0 to 6 percent slopes, contains less organic matter, and has lower available moisture capacity. Leaching is more severe, and smaller amounts of applied plant nutrients are retained. Soil blowing is more severe. The growth of blackjack oak where pines have been cut indicates that not enough moisture is available for the pines.

This soil occurs in small areas in the northern and western parts of the county. Most of it is wooded; many areas have been planted to slash pine. Although this soil is suited to the same crops as Eustis loamy sand, 0 to 6 percent slopes, yields are lower. (Capability unit IVs–1; woodland suitability group 1)

Eustis sand, 6 to 10 percent slopes (EsC).—This soil is more sloping than Eustis loamy sand, 0 to 6 percent slopes, and has a profile of sand instead of loamy sand. The sandy material beneath the surface layer is brown and strong brown and extends to a depth of 3 to 9 feet in most places and to more than 9 feet in a few. Because it is more sloping, this soil is more difficult to work than Eustis loamy sand, 0 to 6 percent slopes, and is more susceptible to erosion in cultivated areas. Also, it is more droughty. (Capability unit IVs–1; woodland suitability group 1)

Eustis sand, terrace, 0 to 6 percent slopes (EtB).—Although this soil is sand instead of loamy sand, it is less droughty than Eustis loamy sand, 0 to 6 percent slopes, because its water table is nearer the surface. It is on stream terraces, mainly those along the Edisto and the Salkehatchie Rivers. In many places the underlying material is stratified coarse sand.

This soil has a small total acreage. Most of it was once cultivated but is now planted to slash pine. Trees, pasture plants, and crops grow less well on this soil than on Eustis loamy sand, 0 to 6 percent slopes, but the two soils are suited to about the same uses. (Capability unit IVs–1; woodland suitability group 1)

Faceville Series

The Faceville series consists of deep, well-drained soils that developed in beds of sandy clay and clay on the higher parts of the middle Coastal Plain. In most places these soils have a dark grayish-brown loamy sand surface layer. Their subsoil is mainly yellowish-red, fine-textured sandy clay or fine sandy clay. These soils are fertile and productive. Slopes range from 0 to 10 percent.

The Faceville soils commonly adjoin, and in some ways resemble, the Marlboro, Magnolia, Ruston, and Caroline soils. They resemble the Marlboro and Magnolia soils in texture and consistence but have a yellowish-red subsoil instead of a yellowish-brown and red one. Faceville soils resemble the Ruston and the Caroline soils in color but are much finer textured in their subsoil than the Ruston. They are somewhat coarser textured and more friable in the subsoil than the Caroline soils and lack the noticeable blocky structure of those soils.

Only about 1.4 percent of the county is in Faceville soils. Large and small areas are in the northwestern part. The original vegetation was mixed pines and hardwoods, but most of the acreage is now in cultivated crops. These soils produce high yields of all locally grown crops, mainly cotton, corn, small grain, and soybeans. Some pasture and hay are also grown.

Faceville loamy sand, 2 to 6 percent slopes (FaB).—This productive soil of the Coastal Plain uplands is well drained and friable and has a yellowish-red subsoil. The main horizons are—

0 to 10 inches, dark-brown loamy sand containing a few, hard, dark-brown concretions.
10 to 49 inches, yellowish-red, friable sandy clay; sticky when wet.
49 to 61 inches, brownish-yellow clay loam mottled with red.

The surface layer ranges from loamy sand to sandy loam. The subsoil ranges from heavy sandy clay loam or sandy clay to clay loam in texture and from 34 to 60 inches in thickness. Included with this soil are small areas of Local alluvial land and of Ruston, Magnolia, and Caroline soils that are too small to be mapped separately. Also included are small, eroded patches where the plow layer consists of the original surface soil mixed with the subsoil.

Because it has a thick root zone, a friable subsoil, and ample available moisture capacity, this soil is productive and is well suited to most of the locally grown crops. It responds well to fertilization and other good management. Permeability and infiltration are moderately slow, and surface runoff is slow. The content of organic matter is medium, and acidity is medium to strong.

This soil occurs in medium to large areas, but its total acreage is small. Its slight susceptibility to erosion can be held in check by terracing, by cultivating on the contour, and by maintaining cover. (Capability unit IIe–2; woodland suitability group 3)

Faceville loamy sand, 2 to 6 percent slopes, eroded (FaB2).—The surface layer of this eroded soil generally is 2 to 4 inches thinner than that of Faceville loamy sand, 2 to 6 percent slopes. It is mostly dark-brown loamy sand. In some places the plow layer, which is 4 to 5 inches thick, consists of the original surface soil mixed with the subsoil. In these places the surface layer ranges from strong brown to yellowish red in color and from sandy loam to sandy clay loam in texture. Some of the more eroded patches are in poor tilth and are droughty because the available moisture capacity is lower than normal. In a few, small areas are scattered, shallow gullies.

This soil is well suited to most cultivated crops grown in the county and is especially well suited to cotton. Because it is susceptible to erosion, however, the soil should be planted to a close-growing crop every other year. Terracing, grassing of waterways, and other practices help to control runoff. If this soil is well managed, yields are similar to those on Faceville loamy sand, 2 to 6 percent slopes. (Capability unit IIe–2; woodland suitability group 3)

Faceville loamy sand, 6 to 10 percent slopes, eroded (FaC2).—This strongly sloping, eroded soil has slower infiltration and more rapid runoff than Faceville loamy sand, 2 to 6 percent slopes, and a thinner, more variable surface layer. The surface layer is generally 3 to 9 inches thick, but in some places the yellowish-red subsoil is exposed. Also, rills are noticeable in fields that are not cultivated on the contour.

Because this soil is more susceptible to erosion than Faceville loamy sand, 2 to 6 percent slopes, more careful management is needed, including contour cultivation and disposal of excess water. Close-growing crops should be grown more often than row crops so that fertility and the organic-matter content are maintained. (Capability unit IIIe–2; woodland suitability group 3)

Gilead Series

In the Gilead series are well-drained soils that developed in beds of marine sands and clays of the Coastal Plain. These soils have a surface layer of gray loamy sand. Their subsoil of slowly permeable, yellowish-brown sandy clay is firm and compact. Slopes range from 2 to 6 percent.

The Gilead soils lie close to the Lakeland, Eustis, Norfolk, Ruston, Vaucluse, and Caroline soils. They are finer textured than the sandy Lakeland and Eustis soils. The Gilead soils are similar to the Norfolk soils in color and texture, but they have a firmer, more compact subsoil. Their subsoil is also firmer and more compact than that of the Ruston soils and is yellowish brown instead of yellowish red. The yellowish-brown color also distinguishes Gilead soils from the yellowish-red Vaucluse soils, but the subsoil of the Gilead and Vaucluse soils is similar in consistence. Compared to the Caroline soils, Gilead soils are yellowish brown instead of yellowish red, are coarser textured, and lack a subangular blocky structure.

The Gilead soils make up only about 0.1 percent of the county and are mostly in the northwestern part. Their native vegetation was mixed stands of longleaf pine, loblolly pine, and oak. About 30 percent of the acreage is now cultivated; the rest is in forest, in pasture, or is idle. These soils are limited in use mainly by their firm, compact subsoil.

Gilead loamy sand, 2 to 6 percent slopes (GaB).—This is a gently sloping soil of the Coastal Plain upland. Its main horizons are—

0 to 10 inches, dark-gray to gray, loose loamy sand.
10 to 26 inches, yellowish-brown, firm sandy clay with a few, fine, reddish-yellow and light-gray mottles in the lower part.
26 to 36 inches, mottled light-gray, reddish-yellow, red, and brownish-yellow, firm sandy clay.

The surface layer ranges from 9 to 30 inches in thickness, but it is 10 to 14 inches thick in most places. The depth to mottles ranges from 14 to 26 inches.

Infiltration and runoff are medium. Generally, this soil is in good tilth and can be worked soon after rains, but during prolonged rainy spells or after heavy rains, its firm, slowly permeable subsoil retards the downward movement of water, and the surface layer becomes so saturated that it cannot be worked for a considerable period. Because the erosion hazard is moderate, contour cultivation is needed. Also needed is a cropping system that builds up the content of organic matter, which ordinarily is low to medium. Fertility is also low to medium.

This soil is suited to corn, cotton, soybeans, and small grain and is fairly well suited to bahiagrass, bermudagrass, sericea lespedeza, and crimson clover for hay and pasture. Yields are fair if fertilizer is added in large amounts. (Capability unit IIe–4; woodland suitability group 12)

Goldsboro Series

The Goldsboro series consists of deep, moderately well drained, friable soils that developed in beds of sandy loam and sandy clay loam on the lower Coastal Plain. These soils have a dark grayish-brown surface layer and a yellowish-brown subsoil. They are moderately permeable, medium in fertility and organic-matter content, and strongly acid. Slopes range from 0 to 2 percent.

The Goldsboro soils adjoin, and in some ways resemble, the Norfolk, Lynchburg, Marlboro, Dunbar, and Rains soils. The Goldsboro soils have a subsoil similar in texture to that of the Norfolk and Lynchburg soils, but they are less well drained than the Norfolk soils and are better drained than the Lynchburg. Consequently, Goldsboro soils are more mottled in the lower subsoil than the Norfolk soils and are less mottled than the Lynchburg. They resemble the Rains soils in texture but lack their very dark gray surface layer and gray subsoil. They lie below the Norfolk soils and above the Lynchburg soils. Goldsboro soils are coarser textured in the subsoil than the Marlboro, Dunbar, and Portsmouth soils.

About 6.1 percent of the county is Goldsboro soils. These soils are common in the eastern and central parts of the county, and they occur in large areas in the southern part, near Ehrhardt. The native vegetation consisted of hardwoods mixed with pines, but most of the acreage has been cleared and is cultivated. These soils, especially in drained areas, have a thick root zone, and enough moisture is available to supply the needs of plants. Tilth is generally good, and many kinds of crops can be grown.

Goldsboro loamy sand (Gb).—This is a level or nearly level, moderately well drained soil. Its horizons are—

0 to 14 inches, very dark grayish-brown loamy sand.
14 to 24 inches, yellowish-brown, friable sandy clay loam.
24 to 32 inches, yellowish-brown, friable sandy clay loam with a few strong-brown and red mottles.
32 to 48 inches, gray sandy clay loam with strong-brown mottles.

In a few places the surface layer is loamy fine sand. The subsoil varies in color where this soil grades toward the well-drained Norfolk soils and the somewhat poorly drained Lynchburg soils. The depth to mottles ranges from 24 to 34 inches. Included in the mapped areas of Goldsboro loamy sand, in some places, are areas of Norfolk or Lynchburg soils that are too small to be mapped separately. Also included are small areas of Rains and Portsmouth soils.

This soil has slow runoff and rapid infiltration. During wet periods water may be excessive because the water table sometimes rises to within 30 inches of the surface. The subsoil is permeable, however, and ordinarily the soil drains readily. Many wet areas can be drained by draining the Lynchburg, Rains, Portsmouth, and other adjacent soils. Ample moisture is available to supply the needs of crops, but the soil cannot be worked so soon after rains as can adjacent well-drained soils.

This soil is well suited to mechanized farming. It is generally in good tilth, is medium in fertility, and contains a medium amount of organic matter. It responds well to fertilization and can be farmed continuously in well-drained, well-fertilized areas. Crop residue should be plowed under so that the content of organic matter is maintained. Lime is needed on this strongly acid soil. The amount needed depends on the crop to be grown and is indicated by soil tests. This soil is suited to the crops commonly grown in the county. Nearly all large areas are cultivated. (Capability unit IIw–2; woodland suitability group 3)

Goldsboro loamy sand, thick surface (Gk).—Except for its thick surface layer, this soil is similar to Goldsboro loamy sand. The surface layer is 20 to 24 inches thick in most places, but its thickness ranges from 18 to 30 inches. The subsoil generally is sandy loam. Areas are included that have a loamy fine sand surface layer.

In dry periods the thick loamy sand surface layer does not hold enough moisture for young plants or shallow-rooted plants. The sandy loam subsoil, however, has medium to high available moisture capacity and supplies enough moisture for mature and deep-rooted plants.

This soil is suited to the same kinds of crops as Goldsboro loamy sand and produces about the same yields if it is well fertilized. The largest areas are in the southern part of the county, but there are a few small areas in the central and eastern parts. About 80 percent of the acreage is in cultivated crops. (Capability unit IIw–2; woodland suitability group 4)

Grady Series

In the Grady series are poorly drained or very poorly drained soils that developed in beds of sandy clay and clay on the middle Coastal Plain. These soils occur only in oval-shaped depressions, or sinks, called Carolina bays. In most places they have a very dark gray surface layer and a gray subsoil that is mottled in the lower part. These soils are medium in fertility and medium to high in organic-matter content. Their available moisture capacity is moderate, and permeability is slow. The root zone is thick. Slopes range from 0 to 2 percent.

In a few places lower areas of Grady soils lie close to, and are intermingled with, the Coxville soils. The Grady soils are less mottled in the upper part of the subsoil than the Coxville soils. The mottles in the Grady soils are dominantly yellowish red or yellowish brown and are not so red as those in the Coxville soils. Grady soils are slightly more sticky in the subsoil than the Coxville soils and contain more kaolin. Their surface layer is normally thinner and joins the subsoil more abruptly.

Grady soils, which make up about 0.7 percent of the county, occur in small areas scattered in the western part. Their native vegetation was gum, poplar, other water-tolerant hardwoods, and loblolly and pond pines. Water-tolerant shrubs and grasses grew in areas that were covered with water for long periods. These soils are best suited to crops that tolerate wetness, but other crops can be grown in drained areas and are fairly productive.

Grady loam (Gr).—This is a nearly level, poorly drained soil in depressions. Its main horizons are—

0 to 7 inches, black, friable loam.
7 to 36 inches, gray, firm to very firm sandy clay to clay mottled with yellowish brown.
36 to 45 inches, gray sandy clay with many mottles.

The surface layer ranges from black to dark gray, the color depending on the content of organic matter. This layer ranges from 5 to 9 inches in thickness and from silty clay loam to silt loam in texture. The subsoil is sandy clay to clay that is almost free of mottles in some places and contains many mottles in others. Thin lenses of sand occur in places. This soil is darker colored, deeper, and wetter near the middle of the depressions than it is at the rim. Colluvium from surrounding soils generally covers the rim of the depressions.

Most areas of this soil have been drained. The depressions, however, lack natural outlets, and in many places it is necessary to dig deep ditches through the higher, surrounding soils to lower the water table. Draining some areas may not be economical.

Only water-tolerant shrubs, canes, and grasses grow in undrained depressions that have water standing for long periods. If the water does not stand too long, or if old ditches are partly effective, abandoned areas grow up in loblolly pine, sweetgum, and water oak.

Much of this soil is cultivated. The response to lime and fertilizer is good. Farm machinery can be used in the small areas surrounded by well-drained soils if these areas are drained. Large areas, however, are better suited to pasture than to row crops. This soil tends to pack seriously if it is cultivated soon after rains and if it is grazed when moist. Adequately drained areas are suited to corn, soybeans, small grain, pasture plants, and a few truck crops. If water-bearing strata are within 20 feet of the surface, and the water has sufficient head, pits for watering stock or for irrigation can be dug in many places. (Capability unit IIIw–2; woodland suitability group 9)

Grady loam, thin surface (Gt).—The surface layer of this soil is less than 5 inches thick. It is black loam and is

normally underlain by a subsoil of gray heavy sandy clay that is finer textured than the subsoil of Grady loam.

Because this soil is slowly permeable, thin, and ponded, it is not suited to cultivated crops nor to pasture. Forest of native trees is the best use. Drained areas are suited to slash pine. (Capability unit VIw–1; woodland suitability group 9)

Izagora Series

The Izagora series consists of nearly level soils that formed on terraces in alluvial sand and clay sediments washed from the Coastal Plain. These soils are moderately deep and moderately well drained or somewhat poorly drained. They have a dark grayish-brown sandy loam surface layer that is underlain by light yellowish-brown sandy loam. At a depth of 10 to 15 inches, the subsoil is brownish yellow faintly mottled with strong brown and yellowish brown. At a depth of 20 to 32 inches, it is light yellowish-brown sandy clay loam mottled with red, strong brown, olive yellow, gray, and yellowish brown. Sandier material occurs at a depth of 30 to 45 inches.

These soils have moderate permeability and medium available moisture capacity. Their content of organic matter and of natural plant nutrients is medium.

The Izagora soils occur near the Kalmia, Leaf, Wahee, Myatt, and Lakeland soils. Izagora soils are lower than Kalmia soils and are not so well drained. In addition, they are more olive in color and, in most places, have a mottled upper subsoil. Izagora soils have a thicker surface layer than Leaf soils and a subsoil that is sandy clay loam instead of sandy clay. They are better drained than the Leaf soils. Their subsoil is more yellowish than the grayish subsoil of the Leaf and Myatt soils. Izagora soils occupy slightly higher positions and have a coarser textured subsoil than the Wahee soils.

Only about 0.6 percent of this county is in Izagora soils. These soils occur mainly in the northern part of the county on the terraces of the Edisto River, but they also occur on the terraces of the Salkehatchie and the Little Salkehatchie Rivers. Their native vegetation is oak, sweetgum, maple, and some longleaf and loblolly pines. About 20 percent or less of the acreage is cultivated. Recently, many areas have been planted to pine trees. If these soils are adequately drained, they are productive, but they occupy areas that are hard to drain. In many places suitable outlets are not available, and only shallow, V-type ditches can be used to remove excess surface water. Consequently, the soils are not suitable for cultivated crops.

Izagora sandy loam, sandy substratum (Ig).—This soil of the river terraces is moderately well drained or somewhat poorly drained. Its main horizons are—

0 to 11 inches, dark grayish-brown, very friable sandy loam.
11 to 20 inches, brownish-yellow, friable sandy clay loam with a few faint, mottles of strong brown.
20 to 32 inches, light yellowish-brown, friable sandy clay loam mottled with yellowish red, strong brown, and light olive gray.
32 to 44 inches, white, loose sand.

The surface layer ranges from 10 to 18 inches in thickness but is generally 11 to 14 inches thick. In a few small included areas, this layer is as much as 25 inches thick. In some places, especially where this soil grades toward the Kalmia soils, the upper part of the subsoil is uniformly yellowish brown or brownish yellow to a depth of 10 to 24 inches. In these places the soil is moderately well drained. In places where this soil grades toward the poorly drained Myatt soils, mottles occur at a depth of 14 to 20 inches. The depth to the sandy substratum ranges from 30 to 45 inches.

This soil is strongly acid and medium in organic-matter content and natural fertility. In many places it is hard to drain, and excess water limits its use for row crops. Although tilth is generally fair, the soil cannot be worked soon after rains. Properly drained areas are suited to corn and small grain and are fairly well suited to cotton and soybeans. Bermudagrass, bahiagrass, and annual lespedeza are suitable for hay and pasture. (Capability unit IIw-2; woodland suitability group 7)

Kalmia Series

In the Kalmia series are deep, well-drained, nearly level soils that developed on stream terraces in beds of sand and clay. These soils have a gray to dark-gray surface layer and a yellowish-brown sandy loam to sandy clay loam subsoil. They are low to medium in natural fertility and organic-matter content and are medium acid to strongly acid.

The Kalmia soils adjoin, and in some ways resemble, the Izagora, Myatt, and other soils of terraces. Kalmia soils resemble the Izagora and Myatt soils in texture, but they lie at a lower level, are better drained, and have a uniform yellowish-brown subsoil instead of a mottled one. The subsoil of Kalmia soils is finer textured than that of the terrace phases of the sandy Lakeland and Eustis soils. Kalmia soils are coarser textured and better drained than Wahee and Leaf soils and lie at a higher level.

The Kalmia soils occur in small areas, mostly along the Edisto River. They account for about 0.1 percent of the county. Their native vegetation is pines and hardwoods in mixed stands, but about half of the acreage is now in cultivation. The rest is in native forest and planted pines. These soils are suited to agriculture because they are generally in good tilth, have a thick root zone, and respond well to applied fertilizer.

Kalmia loamy sand (Ka).—This nearly level soil of the terraces is deep and well drained. Its main horizons are—

0 to 16 inches, dark-gray, loose loamy sand.
16 to 41 inches, yellowish-brown, friable sandy clay loam.
41 inches +, light-gray, loose sand.

The surface layer ranges from dark gray to dark grayish brown in color and from 10 to 18 inches in thickness. Included in the areas mapped are a few small areas of loamy fine sand. The subsoil ranges from pale yellow to reddish yellow and in some places is sandy loam.

This soil has slow runoff and moderate infiltration and permeability. It supplies a medium amount of moisture to cultivated crops and a large amount to trees that extend their roots to the water table. This soil generally is in good tilth and can be worked soon after rains. It is medium in natural fertility and responds well to additions of fertilizer. It contains a small to medium amount of organic matter and, in most places, is strongly acid.

This soil is suited to corn, cotton, grain sorghum, and soybeans. It is well suited to sericea and bicolor lespedezas, bahiagrass, and bermudagrass. (Capability unit I–1; woodland suitability group 3)

Klej Series

In the Klej series are nearly level, moderately well drained or somewhat poorly drained, deep soils that developed in beds of marine sand laid down on Coastal Plain uplands. These soils generally are sand or loamy sand throughout their entire profile. They have a dark grayish-brown surface layer. The subsoil is yellowish brown and is mottled with yellowish brown and gray below a depth of 18 to 30 inches. Klej soils are very strongly acid and are medium in organic-matter content. Their water table is close enough to the surface to supply ample moisture for most crops. Slopes range from 0 to 2 percent.

The Klej soils adjoin, or lie close to, the Lakeland, Norfolk, Goldsboro, Lynchburg, Rains, and Myatt soils. The Klej and Lakeland soils are similar in texture, but the Klej are less well drained and have a mottled subsoil and a darker surface layer. They have a coarser textured subsoil than Norfolk and Goldsboro soils, are more poorly drained than Norfolk soils, but are similar to Goldsboro soils in drainage. Klej soils lie at a lower level than the Norfolk, Goldsboro, and Lakeland soils. They are similar to the Lynchburg soils in drainage but are coarser textured throughout. Klej soils are better drained than Rains and Myatt soils and are lighter gray in the surface layer and less gray in the upper subsoil. They are similar to Myatt soils in texture but have more horizon development.

Only about 1.3 percent of the county consists of Klej soils. Fairly small areas occur in the eastern and southern parts of the county. The native vegetation was loblolly pine, blackgum, sweetgum, and maple and an undergrowth of pigmy oak, myrtle bushes, and native grasses. Much of the acreage remains in these plants. Although about 35 percent of the acreage has been cleared for cultivation, some of this acreage has recently been planted to pines.

These soils are limited in use mainly by poor drainage and low fertility. The excess water that comes from the high water table needs to be removed.

Klej loamy sand (Km).—This is a deep, strongly acid, moderately well drained soil. Its main horizons are—

0 to 7 inches, very dark gray, very friable loamy sand.
7 to 19 inches, light olive-brown, very friable loamy sand.
19 to 27 inches, light yellowish-brown, very friable loamy sand with faint mottles of strong brown and light brownish gray.
27 to 36 inches, friable loamy sand mottled with light brownish gray, yellowish brown, and gray.
36 to 50 inches, gray, friable loamy sand.

The surface layer ranges from black to very dark gray and, in some places, is loamy fine sand. The subsoil is sand in some places; in other places a layer of sandy clay loam occurs at a depth of 30 to 42 inches. In some places gray mottles are visible at a depth of 20 inches.

Drained areas of this soil are fairly well suited to truck crops, corn, soybeans, oats, and velvetbeans, and to bermudagrass, bahiagrass, white clover, and annual lespedeza. Lime is required for most crops. Because of the slow runoff and the seasonally high water table, tile drains and open ditches are needed for removing excess water. Maintaining the ditches, however, is difficult because the subsoil is sandy. (Capability unit IIIw–1; woodland suitability group 7)

Klej loamy sand, terrace (Kt).—This soil occupies the terraces along rivers and small streams. It is generally coarser textured in the substratum than Klej loamy sand, and its surface layer ranges from dark gray to black. Although this soil is similar to Klej loamy sand and is suited to the same crops, many areas are more difficult to drain because suitable outlets are few. (Capability unit IIIw–1; woodland suitability group 7)

Lakeland Series

The Lakeland series consists of deep or very deep, excessively drained soils that developed in beds of sand on the Coastal Plain. Sand generally extends from the surface throughout the profile. In most places these soils have a grayish-brown surface layer and a yellowish-brown subsoil that is more than 24 inches thick. They are strongly acid and are low in available moisture capacity, fertility, and organic-matter content. Slopes range from 0 to 15 percent.

The Lakeland soils adjoin the Eustis, Norfolk, Ruston, Vaucluse, and Kalmia soils in many places and in some ways resemble them. They are similar to the Eustis soils in texture but have a yellow subsoil in contrast to the yellowish-red subsoil of the Eustis soils. Both the surface layer and the subsoil of the Lakeland soils are similar to those of the Norfolk soils in color but are coarser textured. The subsoil of the Lakeland soils is coarser textured and more yellow than the browner subsoil of the Ruston and Vaucluse soils. Lakeland soils are much coarser textured than the Kalmia soils.

The Lakeland series is one of the most extensive series in the county. Large and small areas of Lakeland soils occur and total 40,991 acres, which is slightly more than 16 percent of the county. The native vegetation was longleaf pine with an understory consisting mostly of blackjack oak and a few other hardwoods. The Lakeland soils are not farmed extensively, and much of their acreage has been allowed to grow up in broomstraw and other wild plants. Where the pines have been cut over, blackjack oak is the principal tree. Only about half of the gently sloping acreage is in cultivation. The productivity of these sandy soils is limited by droughtiness.

Lakeland sand, 0 to 6 percent slopes (LaB).—This soil of the sandy uplands is deep and excessively drained. Its main horizons are—

0 to 7 inches, dark-gray to grayish-brown, loose sand.
7 to 38 inches, light yellowish-brown, loose sand.
38 to 43 inches, strong-brown, loose sand.
43 to 60 inches, reddish-yellow to very pale brown, loose sand.

The surface layer ranges from very dark grayish brown to grayish brown, the color depending on the content of organic matter. The subsoil ranges from brownish yellow through yellowish brown to strong brown. The brown is more noticeable where this soil grades toward the Eustis soils or where it overlies beds of reddish soil materials. Firm sandy loam or sandy clay occurs in some places at a depth of 3 to 10 feet but may be deeper in rolling areas. Included with this soil are a few areas of fine sand that are too small to be mapped separately.

This soil has rapid infiltration and very rapid percolation. Water percolates through it at a rate of 10 inches or more per hour and excessively leaches organic matter and both natural and applied nutrients. Runoff is not a serious hazard, but soil blowing is severe where this loose soil is dry or is freshly plowed and exposed to winds. Young plants may be damaged by sand drifting from rows. This

droughty soil is limited in use because it has low available moisture capacity. Most crops, especially those that require a good supply of moisture, are not well suited.

This soil is in large and small areas. Less than half of its acreage is cultivated; most areas are cutover woodland that has grown up in blackjack oak. Many areas have been planted to slash pine or have reseeded naturally to longleaf pine. Some corn, cotton, watermelons, small grain, and soybeans are grown, but yields are low, even in heavily fertilized areas. Bermudagrass and bahiagrass grow fairly well on this soil. Most cultivated fields are in the more nearly level areas where sandy clay occurs at a depth of 3 to 6 feet and holds moisture that plants can use. (Capability unit IVs–1; woodland suitability group 1)

Lakeland sand, 6 to 10 percent slopes (LaC).—In this sloping soil the depth to the underlying sandy clay varies more than it does in Lakeland sand, 0 to 6 percent slopes. This sandy clay normally is nearer the surface in low areas, and the available moisture supply is greater. Shallow gullies are scattered in a few places.

Most of this soil is wooded or is idle. If the cover of growing plants were removed, the hazard of erosion would be severe. (Capability unit IVs–1; woodland suitability group 1)

Lakeland sand, 10 to 15 percent slopes (LaD).—This soil generally lies in narrow areas on short slopes paralleling streams. The depth to the underlying sandy clay material varies more than it does in Lakeland sand, 0 to 6 percent slopes. In most places the sandy clay is at a depth of 3 to 4 feet, but it occurs at a depth of 30 to 36 inches in a few places that are too small to be mapped separately. Vaucluse and Gilead soils are in other areas too small to be mapped separately.

Nearly all of this strongly sloping soil is wooded. If cleared, the wooded areas would not be suited to cultivation, for the hazards of leaching and erosion would be severe. On some slopes, however, trees obtain enough moisture from the ground water. (Capability unit VIs–1; woodland suitability group 1)

Lakeland sand, moderately shallow, 0 to 2 percent slopes (LdA).—This is a sandy soil of the uplands. Its main horizons are—

7 to 9 inches, grayish-brown, loose sand.
9 to 33 inches, light yellowish-brown, loose sand.
33 to 50 inches, yellowish-brown, friable sandy clay loam with a few mottles of strong brown and red.

The surface layer ranges from dark grayish brown to light brownish gray in color and from 30 to 42 inches in thickness. The subsoil ranges from sandy clay loam to sandy loam. Included with this soil are small areas of loamy sand, loamy fine sand, or fine sand.

In many cultivated areas a compact or slightly cemented layer occurs at a depth of 7 to 12 inches and is 2 to 5 inches thick. This layer, called a traffic pan, was compacted when heavy tillage implements were used, and after compaction, it probably was cemented by some of the organic matter and fertilizer that remained in the soil. The pan makes this soil more droughty than normal and restricts development of roots. It can be broken up by subsoiling with a chisel plow. A traffic pan does not form in areas that have never been cultivated.

This soil is strongly acid, is low in natural fertility, and contains little organic matter. It is generally in good tilth but is droughty because its available moisture capacity is low and permeability is rapid. If this soil is well managed, it is fairly well suited to watermelons, corn, small grain, soybeans, and other row crops. Suitable hay and pasture grasses are Coastal bermudagrass, bahiagrass, and sericea lespedeza. Pines frequently reseed naturally and grow well on this soil if enough seeds are available. (Capability unit IIIs 1; woodland suitability group 2)

Lakeland sand, moderately shallow, 2 to 6 percent slopes (LdB).—Because this soil is more sloping than Lakeland sand, moderately shallow, 0 to 2 percent slopes, surface runoff is slightly more rapid, especially during heavy rains. More water is lost as runoff and less is available for plant use. This soil is suited to the same crops, grasses, and trees as the more nearly level soil. (Capability unit IIIs -1; woodland suitability group 2)

Lakeland sand, moderately shallow, 6 to 10 percent slopes (LdC).—This soil is more sloping and droughty than Lakeland sand, moderately shallow, 0 to 2 percent slopes. Surface runoff is medium to moderately slow, and cultivated areas are moderately susceptible to erosion. Tilth is generally good.

Although this soil is poorly suited to cultivation, it can be cultivated occasionally. It is best suited to trees and is mostly wooded. (Capability unit IVs–1; woodland suitability group 2)

Lakeland sand, moderately shallow, 10 to 15 percent slopes (LdD).—This strongly sloping soil has greater runoff than Lakeland sand, moderately shallow, 0 to 2 percent slopes, and is more susceptible to erosion. It has low available moisture capacity and rapid permeability. It is strongly acid and low in natural fertility and content of organic matter. This soil is not suited to cultivated crops; its best use is for forest. (Capability unit VIs–1; woodland suitability group 2)

Lakeland sand, moderately shallow, terrace, 0 to 4 percent slopes (LkB).—This soil is similar to Lakeland sand, moderately shallow, 0 to 2 percent slopes, but is lightly mottled with gray in the lower part. It occurs on river terraces instead of on uplands and is, consequently, subject to occasional flooding.

Because this soil is droughty and low in available moisture capacity, it is not well suited to cultivated crops, to pasture, nor to peaches. Crops are subject to frost damage late in spring and early in fall. This soil can be used and managed in the same way as Lakeland sand, moderately shallow, 0 to 2 percent slopes. (Capability unit IIIs–1; woodland suitability group 2)

Lakeland sand, terrace, 0 to 6 percent slopes (LlB).—This soil on terraces has a water table closer to the surface than Lakeland sand, 0 to 6 percent slopes, and is paler in its lower part. Its surface layer is dark grayish brown, and its subsurface layers are pale brown to light yellowish brown.

This soil is generally in good tilth. Infiltration is high, and permeability is very rapid. Runoff is slow, and erosion is not likely. Because plant nutrients are readily leached out and the available moisture capacity is low or very low, the productivity of this soil and its range of suitable crops are limited. Ample moisture is available for trees because they send their roots down to the water table. (Capability unit IVs–1; woodland suitability group 1)

Leaf Series

The Leaf series consists of deep, poorly drained soils that developed in sandy and clayey alluvium washed from the Coastal Plain. These soils have a gray or dark-gray loamy sand or clay loam surface soil and a gray sandy clay subsoil that is commonly mottled with yellowish brown. Below a depth of 32 to 45 inches, there is a layer of sandy material. Water is ponded on the surface in some places because runoff is very slow and internal drainage is slow or very slow. Infiltration is slow, and the available moisture capacity is medium. These soils are medium in organic-matter content and are strongly acid. Slopes range from 0 to 2 percent.

The Leaf soils occur near the Kalmia, Izagora, Wahee, and Myatt soils. They are more poorly drained than the Kalmia, Izagora, and Wahee soils. Leaf soils occupy lower positions than the Kalmia and Izagora soils and have a thinner surface layer and a much finer textured subsoil. In contrast to the Myatt soils, the Leaf soils have a tough, fine-textured subsoil that is sticky and plastic instead of friable and sandy.

The Leaf soils account for about 1.7 percent of the county. They occur almost entirely on the terraces of the Edisto River, but a few areas are on the terraces of the Salkehatchie and the Little Salkehatchie Rivers. The native vegetation was mainly blackgum, sweetgum, red oak, white oak, water oak, and a few loblolly pines. Less than 5 percent of the acreage in these soils is used for cultivated crops or pasture; the rest is in cutover forest. These soils are of limited use for crops because their very firm sandy clay subsoil is wet, poorly drained, and slowly permeable.

Leaf loamy sand, sandy substratum (Ln).—This poorly drained soil is on terraces and has a gray, very firm subsoil. Its main horizons are—

0 to 5 inches, gray, very friable loamy sand.
5 to 27 inches, gray, very firm sandy clay mottled with yellowish brown.
27 inches +, gray, loose sand.

The surface layer is mainly dark-gray to gray loamy sand, but in some places it is sandy loam or fine sandy loam. It ranges from 5 to 10 inches in thickness. The subsoil ranges from gray to gray mottled with yellowish brown in color and from sandy clay to clay in texture. It is very firm or firm. The depth to the sandy substratum ranges from 25 to 40 inches.

This soil is very strongly acid and is medium in natural fertility and in organic-matter content. It has slow runoff and is ponded in some places. The growth of roots and the downward movement of water are retarded by the slowly permeable, very firm, clayey subsoil. In dry periods there is not enough moisture available for plants. Consequently, this soil is not suited to cultivation; less than 5 percent is cultivated. If the soil is well managed, however, it is suited to pasture and to pine trees. Open ditches are needed for removing excess surface water. Tile drains are not satisfactory, because suitable outlets are lacking and the soil is slowly permeable. (Capability unit IVw–2; woodland suitability group 8)

Leaf clay loam, thin surface (Lm).—This soil has a black to very dark gray clay loam surface soil 1 to 4 inches thick. Its subsoil is very firm, gray clay. A layer of light-gray, loose sand occurs at a depth of 36 to 50 inches.

This soil is generally in poor tilth. Infiltration and permeability are very slow, and surface runoff is slow or ponded. When the soil dries, it cracks and hardens. It is strongly acid. For these reasons, this soil is not suited to cultivated crops and is only fairly well suited to pasture. It is mainly in hardwood trees and a few scattered pines. (Capability unit IVw–2; woodland suitability group 8)

Local Alluvial Land (Lo)

Local alluvial land consists of variable, alluvial and colluvial materials that washed from the adjacent soils of the Coastal Plain uplands. It is in small depressions and along intermittent drainageways and draws. Slopes range from 0 to 2 percent.

In most places Local alluvial land is moderately well drained, but drainage depends on the kind of underlying material and ranges from good to somewhat poor. Included in some places are a few small, poorly drained areas and a few small areas of Mixed alluvial land.

The depth to the underlying material generally ranges from 12 to 30 inches, but in some few places this depth is as much as 40 inches. In texture and color the soil material resembles that of the adjacent soils from which it was washed. Texture ranges from sand to loam. It is generally sand and loamy sand in areas near the Lakeland, Eustis, and other coarse-textured soils. Sandy loam and loam are generally dominant in areas near the Magnolia and other soils that have a clayey subsoil.

The color of the surface layer depends on the content of organic matter and the color of the adjacent soils. It ranges from dark gray or dark grayish brown to very dark gray or grayish brown. Local alluvial land is similar to the Grady, Coxville, Rains, and Portsmouth soils in color and, in some places, occupies similar positions. It lacks, however, the distinct horizons of those soils and is generally looser in the subsurface layers.

The available moisture capacity of this land is generally medium but it ranges from low to high. Runoff is slow, and water remains on the surface for long periods in places, especially in those that lack natural outlets and are not artificially drained. Permeability varies but is generally moderate. Because runoff is slow and water seeps from the surrounding uplands, this land supplies a medium to large amount of moisture to plants. The soil material is high in plant nutrients and is high to medium in organic matter. It is generally strongly acid.

In this county Local alluvial land totals about 960 acres. Most areas range from 1 to 5 acres in size, but a few are 10 to 15 acres. The larger areas are generally long and narrow and can be tilled separately, but the smaller areas generally are tilled along with the surrounding soils. The use of this land is limited mostly by excess water. Artificial drainage is needed in most areas. In some areas runoff from higher soils should be diverted. Adequately drained areas can be cultivated intensively and are suited to most truck crops and to other crops grown locally. They are well suited to pasture and hay. This land is especially well suited to corn, pasture grasses, and other crops that require a large amount of moisture.

Cotton produces good yields on this land, but it is likely to be damaged by insects and disease because growth is rank. Many areas that are surrounded by sloping uplands are used as outlets for terraces and are kept in bahia-

grass, sericea lespedeza, and other continuous or perennial close-growing plants. A few areas have reverted to trees, which grow rapidly. (Capability unit IIw–1; woodland suitability group 5)

Lynchburg Series

The Lynchburg series consists of deep, somewhat poorly drained soils of the Coastal Plain uplands. These soils developed from sandy clay marine sediments. Slopes range from 0 to 2 percent.

The surface layer is very dark gray to dark gray and is underlain by a subsurface layer of light yellowish brown that is mottled with reddish yellow, gray, or light gray. From a depth ranging from 10 to 25 inches, a subsoil of sandy clay loam extends to a depth of 50 inches. The upper part of the subsoil is light yellowish brown and is mottled with yellowish brown and gray. At a depth of 18 to 50 inches, the subsoil is mottled with gray. Mottles are pale olive, yellowish brown, and light yellowish brown at a depth of 18 to 30 inches and are yellowish brown and brownish yellow at a depth of 30 to 50 inches. Lenses of white sand occur at a depth of 30 to 50 inches, and coarser material is at a depth of 3 to several feet.

These soils have moderate infiltration and permeability. They are medium in natural fertility and in content of organic matter.

The Lynchburg soils occur mainly in the eastern part of the county near the communities of Buckhead, Little Swamp, and Hunters Chapel, but many areas are in the southern part. Areas of these soils are large and small and amount to about 4.7 percent of the county. The native vegetation was mainly loblolly and longleaf pines, red oak, blackgum, sweetgum, and maple. The understory consisted of native grasses, myrtle bushes, and, in some places, of many pigmy oaks. About 30 percent of the acreage is cultivated, but the use of these soils for crops is limited because suitable outlets for drainage are lacking.

Lynchburg loamy sand (ly).—This is a somewhat poorly drained, friable soil on uplands. Its main horizons are—

0 to 6 inches, very dark gray, very friable loamy sand.
6 to 14 inches, grayish-brown, very friable loamy sand.
14 to 23 inches, light yellowish-brown, friable light sandy clay mottled with yellowish brown and gray.
23 to 41 inches, gray, friable light sandy loam mottled with yellowish brown, pale olive, and light yellowish brown.
41 to 63 inches, gray, massive sandy clay loam containing lenses of white sand.

The surface layer generally ranges from 10 to 18 inches in thickness, but in a few places it is as much as 30 inches thick. In most places this layer is dark gray or very dark gray to very dark grayish brown, but in a few places it is black. The subsoil ranges from sandy loam to sandy clay loam. In some places it is faintly mottled in the upper part.

This soil is very strongly acid or strongly acid and is medium in natural fertility and organic-matter content. It is generally in good tilth, but runoff is slow and wetness is a hazard. The water table fluctuates and is at or near the surface in wet periods. In adequately drained areas, however, the root zone is thick, the moisture content is favorable, and response to fertilization is good.

This soil is suited to many crops grown locally, but it is better suited to pasture or trees than to crops. (Capability unit IIw–2; woodland suitability group 7)

Lynchburg loamy fine sand (ls).—This soil is finer textured throughout its profile than Lynchburg loamy sand. Its surface layer is generally 10 to 15 inches thick, but in a few places it is as much as 24 inches thick. Underlying the surface layer is light yellowish-brown, friable sandy loam or sandy clay loam mottled with yellowish brown and some gray. The water table fluctuates and, in wet periods, is at or near the surface.

Most of this soil is near Ehrhardt in the southern part of the county. The soil is strongly acid. Tilth is generally good, and infiltration and permeability are moderate. Surface runoff is slow, and drainage is needed. Adequately drained areas are productive because the moderately permeable root zone is thick, the moisture content is favorable, and response to fertilization is good. This soil is suited to many locally grown crops, but it is better suited to pasture and pine trees. (Capability unit IIw–2; woodland suitability group 7)

Magnolia Series

The Magnolia series consists of deep, well-drained soils on the uplands of the upper and middle Coastal Plain. These soils developed in beds of sandy clay marine sediments. They have a dark grayish-brown, dark-brown, or grayish-brown loamy sand surface layer. Below a depth of 5 to 10 inches is a red sandy clay to clay subsoil. Brittle sandy clay loam that is mottled with reddish yellow and gray lies at a depth of 36 to 60 inches or more. These soils have a medium available moisture capacity and moderate permeability and infiltration. They are high in their supply of natural plant nutrients and are highly productive under good management. Slopes range from 2 to 10 percent.

The Magnolia soils adjoin the Norfolk, Ruston, Orangeburg, Faceville, and Caroline soils and Local alluvial land. Their surface layer is thinner than that of the Norfolk, Ruston, and Orangeburg soils, and the boundary between the surface layer and the subsoil is more abrupt. In addition, the subsoil of Magnolia soils is finer textured than that of the Norfolk, Ruston, and Orangeburg soils and is redder than the subsoil of the Norfolk and Ruston soils. Magnolia soils are similar to the Faceville soils but have a redder subsoil. They lack the firm or compacted layer of the Caroline soils and are finer textured and better drained than Local alluvial land. Also, the Magnolia soils occupy the uplands, but Local alluvial land occupies the bottoms of intermittent drainageways.

The Magnolia soils are mainly in the northwestern quarter of the county, near Finland, Sweden, and Denmark, but a few areas are in the western part. Their total acreage makes up less than 1 percent of the county. The native vegetation consisted of longleaf and loblolly pines mixed with white, red, and post oaks, and there were a few hickory trees and other hardwoods. Most of the acreage has been cleared and is cultivated. These soils are productive and well suited to most locally grown crops and to trees and pasture. Because the root zone is thick, the moisture content is favorable and the response to management is good.

Magnolia loamy sand, 2 to 6 percent slopes (MaB).—This is a deep, productive soil. Its main horizons are—

0 to 7 inches, dark-brown, very friable loamy sand.
7 to 72 inches, red, friable sandy clay; sticky when wet.
72 to 80 inches, mottled red, yellowish-brown, and gray, brittle sandy clay loam.

The surface layer ranges from 5 to 10 inches in thickness and is slightly variable in color. The red subsoil ranges from 36 to 60 inches or more in thickness. Included with this soil are small areas of other soils that are too small to be mapped separately.

This soil is slightly acid to medium acid, medium in content of organic matter, and medium to high in natural fertility. The erosion hazard is slight as a result of the gentle slopes, medium runoff, and moderate infiltration. Some soil blowing occurs early in spring in areas that are dry and freshly plowed. This soil is highly productive because it has a thick, moderately permeable root zone and holds enough moisture for plants. It responds well to good management and is well suited to many kinds of locally grown crops. Pasture plants and pine trees grow well. (Capability unit IIe–2; woodland suitability group 3)

Magnolia loamy sand, 2 to 6 percent slopes, eroded (MaB2).—The surface layer ranges from 4 to 8 inches in thickness and is dark brown in color. In a few places the plow layer consists of material from the original surface layer mixed with that of the subsoil. These areas are reddish in color and are sandy loam to sandy clay loam in texture.

This soil is slightly acid to medium acid and medium to high in fertility. It is medium in organic-matter content and available moisture capacity. Uneroded areas are generally in good tilth. Because runoff is medium, slopes are gentle, and infiltration is moderate, the soil is susceptible to slight erosion. It is a productive soil, however, for it has a thick root zone and favorable moisture capacity, and it responds well to good management. Many kinds of locally grown crops are suited, as well as pasture and pine trees. (Capability unit IIe–2; woodland suitability group 3)

Magnolia loamy sand, 6 to 10 percent slopes, eroded (MaC2).—The surface layer of this eroded soil generally is 4 to 7 inches thick, but its thickness is more variable than that of Magnolia loamy sand, 2 to 6 percent slopes. In some places the original surface soil has been mixed with the subsoil and the plow layer is red sandy loam to sandy clay loam.

This soil has a thick root zone and is medium in natural fertility, available moisture capacity, and organic-matter content. It is medium acid to slightly acid. Although this soil responds well to fertilization and other good management, cultivated areas are susceptible to moderate or severe erosion because slopes are strong and runoff is rapid. The soil is therefore not well suited to cultivation and should not be cultivated more than 1 year out of 3. It is well suited to pasture and pine trees. (Capability unit IIIe–2; woodland suitability group 3)

Marlboro Series

In the Marlboro series are deep, well-drained soils of the Coastal Plain uplands. These soils developed from sandy and clayey marine sediments. They have a dark grayish-brown or grayish-brown loamy sand or sandy loam surface layer and a yellowish-brown sandy clay upper subsoil. Below a depth of 20 to 30 inches the sandy clay subsoil is strong brown or yellowish brown and is faintly mottled with brownish yellow. Brownish-yellow sandy clay loam, mottled red and gray, occurs at a depth of 34 to 70 inches. The depth to coarse material is 30 feet or more. The Marlboro soils have moderate infiltration, permeability, and available moisture capacity. They are medium in organic-matter content and high in natural fertility. Slopes range from 0 to 10 percent.

The Marlboro soils occupy nearly level to sloping plains and ridges with the Norfolk, Ruston, Dunbar, Goldsboro, and Coxville soils. The surface layer of Marlboro soils is thinner than that of the Norfolk and Ruston soils, and its lower boundary is more abrupt. In addition, the subsoil of Marlboro soils is finer textured than that of the Norfolk and Ruston soils and is yellowish instead of reddish as is the subsoil of Ruston soils. The Marlboro soils are better drained than the Coxville, Dunbar, and Goldsboro soils.

About 2.9 percent of this county is in Marlboro soils. These soils occur mainly in large and small areas in the western half of the county. Their native vegetation was loblolly pine, red and white oaks, and some hickory and other hardwoods. Almost all of the acreage has been cleared and is cultivated. Because they have a thick root zone, can supply enough moisture to plants, and respond well to management, these soils are productive and well suited to many kinds of locally grown crops. They are also well suited to pasture and trees.

Marlboro loamy sand, 2 to 6 percent slopes, eroded (MbB2).—This is a deep, productive soil. Its main horizons are—

0 to 7 inches, dark grayish-brown, very friable loamy sand.
7 to 32 inches, yellowish-brown, friable sandy clay; sticky when wet.
32 to 73 inches, strong-brown, friable sandy clay; sticky when wet.

The surface layer ranges from 6 to 10 inches in thickness and is sandy loam or loamy sand in texture. It is dark grayish brown or grayish brown. The plow layer is 4 or 5 inches thick and, in a few eroded areas, consists of the original surface soil mixed with material from the subsoil. The subsoil ranges from reddish yellow to brownish yellow. In most areas hard, dark-brown concretions occur on the surface.

This soil is strongly acid to medium acid, is medium to high in natural fertility, and contains a medium amount of organic matter. It is generally in good tilth. Because the subsoil is moderately permeable, the root zone is thick, and the moisture content and response to fertilization are favorable, this soil is productive and well suited to most locally grown crops. Erosion is a slight hazard, however, because runoff is medium. In spring, large open fields are susceptible to soil blowing if the soil is dry or freshly plowed. (Capability unit IIe–2; woodland suitability group 3)

Marlboro loamy sand, 0 to 2 percent slopes (MbA).—This nearly level soil has slower runoff than Marlboro loamy sand, 2 to 6 percent slopes, eroded, and is less susceptible to erosion. The loamy sand surface layer ranges from 8 to 12 inches in thickness and is dark grayish brown or grayish brown. It is underlain by sandy clay that is brownish yellow in the subsurface layer and yellowish brown in the subsoil.

Because this soil has a thick, moderately permeable root zone and favorable moisture content, it is productive and is well suited to most locally grown crops. It responds well to management. The soil is generally medium acid, low in organic-matter content, and medium to high in natural fertility. Runoff is medium, and erosion is moderate. In spring, soil blowing is a problem on large, dry, freshly plowed fields. (Capability unit I–2; woodland suitability group 3)

Marlboro loamy sand, 2 to 6 percent slopes (MbB).—This soil has a dark grayish-brown loamy sand surface layer 8 to 12 inches thick. The subsoil is friable, yellowish-brown sandy clay.

Because of its deep, moderately permeable subsoil, favorable moisture content, and good response to management, this soil is highly productive. It is well suited to most of the crops grown in this county, as well as to pasture and pine trees. It generally is medium acid and high in natural fertility. Runoff is moderate and is likely to cause erosion. (Capability unit IIe–2; woodland suitability group 3)

Marlboro loamy sand, 6 to 10 percent slopes, eroded (MbC2).—This soil is similar to Marlboro loamy sand, 2 to 6 percent slopes, eroded. The surface layer is dark grayish-brown loamy sand 4 to 8 inches thick. The plow layer is 4 or 5 inches thick and, in some places, consists of the original surface soil mixed with material from the subsoil. In these places the plow layer is yellowish-brown sandy loam.

This soil is in small cultivated areas on short slopes and on wooded slopes paralleling streams. Because runoff is moderately rapid, erosion is moderately severe. This soil is not well suited to cultivation, but it is well suited to pasture. (Capability unit IIIe–2; woodland suitability group 3)

McColl Series

Soils of the McColl series are moderately deep and poorly drained or somewhat poorly drained. They developed in beds of sandy and clayey marine sediments in oval depressions of the upper and middle Coastal Plain. These soils have a very dark gray or dark gray loam surface layer and a gray sandy clay upper subsoil that is faintly mottled with brownish yellow. Extending from a depth of about 13 inches to about 30 inches, the subsoil is strong brown with red mottles and vertical, coarse and medium, gray streaks. A distinct layer of mottled red, gray, yellow, and brown sandy loam occurs at a depth of 25 to 40 inches. The depth to the coarser textured material is 30 to 72 inches.

In McColl soils the available moisture capacity is medium, permeability is slow, and the content of organic matter and of natural plant nutrients is medium.

These soils occur near the Norfolk, Marlboro, Coxville, and Grady soils. They are more poorly drained than the Norfolk and Marlboro soils. McColl soils are similar to the Coxville and Grady soils but are more mottled in the subsoil.

The McColl soils occur in small and medium-sized depressions that are widely scattered in the western half of the county. They amount to only about 0.4 percent of the county. Their native vegetation was mostly blackgum and a few pond pines. Most of the acreage has been cleared; about 35 percent is cultivated, and the rest is in pasture or is idle. The suitability of these soils for cultivation is limited by the firm or very firm clay or sandy clay that is near the surface.

McColl loam (Mc).—This soil is in depressions on uplands. Its main horizons are—

0 to 6 inches, dark-gray, friable loam.
6 to 12 inches, gray, firm clay.
12 to 28 inches, strong-brown, friable sandy clay loam with vertical streaks or columns of gray, firm sandy clay.
28 inches +, mottled light-gray, yellow, red, and strong-brown, firm sandy clay.

The surface layer ranges from dark gray or very dark gray to black in color and from 4 to 7 inches in thickness. In some areas the 4- to 6-inch plow layer is a mixture of the original surface soil and the subsoil. Most of these areas have a clay loam surface layer.

This soil generally is in moderately good or somewhat poor tilth. It is medium in natural fertility and medium or high in organic-matter content. The slowly permeable, clayey subsoil is sticky when wet, and it hardens as it dries. This layer limits root penetration and the available moisture capacity. Open drainage ditches are needed if this soil is used for crops, pasture, or pine trees. Well-managed areas are suited to some cultivated crops, but the best uses are for permanent pasture and pine trees. (Capability unit IIIw–2; woodland suitability group 9)

McColl sandy loam (Md).—The surface layer of this soil is very dark gray or black sandy loam 7 to 10 inches thick. It is generally in good tilth. The firm, slowly permeable, clayey subsoil hardens as it dries and limits root penetration and the available moisture capacity.

If this soil is well managed and drained by open ditches, it is suited to some cultivated crops and is well suited to permanent pasture and pine trees. (Capability unit IIIw–2; woodland suitability group 9)

Mixed Alluvial Land (Mn)

This land is nearly level and very poorly drained to somewhat poorly drained. It consists of local alluvium that varies in color, texture, and other characteristics. The soil material ranges from black to light gray in color and from sand to silty clay in texture.

Mixed alluvial land occurs throughout the county. It is along some intermittent streams and along small streams that originate in the county and frequently flood surrounding areas. The vegetation is water oak, sweetgum, blackgum, cypress, a few pine trees, and a thick undergrowth of alder and briers. (Capability unit IVw–4; woodland suitability group 15)

Myatt Series

The soils of the Myatt series are nearly level and poorly drained. They have formed from sediments of alluvial sand and clay that washed from the Coastal Plain. Their surface layer of dark-gray loamy sand is underlain by gray loamy sand to sandy clay loam. At a depth of 8 to 20 inches, the subsoil is gray sandy clay loam. A coarse sandy layer that restricts root growth occurs at a depth of 24 to 42 inches. The Myatt soils have slow surface runoff and are low in natural fertility. They are moderate to slow in permeability.

The Myatt soils occur near the Kalmia, Wahee, Leaf, Okenee, Izagora, and Lakeland soils. They are lower and more poorly drained than the Kalmia, Wahee, and Izagora soils. In the subsoil, the gray of the Myatt soils contrast with the yellow of the Kalmia soils and the mottled light yellowish brown of the Wahee and Izagora soils. Compared to the Leaf soils, Myatt soils have a sandy clay loam subsoil instead of a sandy clay or silty clay one. They are finer textured than the Lakeland soils of terraces, which are excessively drained. Myatt soils have a thinner surface layer than the Okenee soils.

About 1.4 percent of this county is in Myatt soils. These soils are mainly in the northern part of the county on the terraces of the Edisto River, but a few small areas are on the terraces of other streams. The vegetation is blackgum, sweetgum, maple, and some cypress and pine. Most of the acreage is in cutover forest, but small parts are in cultivated crops and in pasture. These wet, occasionally flooded soils lack suitable outlets for drainage and are greatly limited in their use for cultivation.

Myatt loamy sand (My).—This soil is on terraces. Its main horizons are—

0 to 9 inches, dark-gray, very friable loamy sand.
9 to 28 inches, gray, friable sandy clay loam.
28 inches +, light-gray, loose sand.

The surface layer generally ranges from 7 to 18 inches in thickness, but in a few places it is as much as 30 inches thick. The subsoil ranges from sandy loam to sandy clay loam. Included in the mapped areas of this soil are small areas of Izagora, Wahee, Leaf, and Okenee soils that are too small to be mapped separately.

This soil has a high water table and high available moisture capacity. Surface runoff is slow, and permeability is moderate. The soil is very strongly acid. Because it lacks suitable outlets for drainage and is susceptible to flooding, this soil is not well suited to cultivation. Drained areas are well suited to pasture and pine trees. (Capability unit IVw–3; woodland suitability group 11)

Norfolk Series

The Norfolk series consists of deep, well-drained soils that developed in beds of sandy loam and sandy clay on the uplands of the middle and lower Coastal Plain. These soils have a gray, sandy surface layer and a yellowish-brown to strong-brown, friable subsoil that ranges from sandy loam to sandy clay.

These soils are medium to high in natural fertility and are medium acid. Their content of organic matter varies but is generally medium. Although slopes range from 0 to 10 percent, most areas of these soils are nearly level to gently sloping.

The Norfolk soils adjoin, and in some ways resemble, the Lakeland, Ruston, Marlboro, Dunbar, Goldsboro, Lynchburg, Coxville, and Rains soils. They have a finer textured subsoil and are much more productive than the Lakeland soils. Norfolk soils are similar to the Ruston soils in texture but have a yellowish-brown subsoil instead of a yellowish-red one. They have a slightly coarser textured subsoil than Marlboro and Dunbar soils and generally a thinner surface layer. Their subsoil is not mottled as is the subsoil of Dunbar soils. Norfolk soils are better drained and have a lighter gray surface layer than the Goldsboro, Lynchurg, and Rains soils. Norfolk soils are also better drained than Coxville soils and have a coarser textured subsoil.

The Norfolk soils make up about 17 percent of the county and are widely distributed but are least extensive in the southeastern part. Most areas have been cleared of their native pines and hardwoods and are now cultivated. Because these soils have rapid infiltration and a deep, moderately permeable subsoil, they absorb most of the rainfall and supply ample moisture to plants. Their light-textured surface layer generally is in good tilth. These soils are well suited to all locally grown crops and can be farmed intensively with machines.

Norfolk loamy sand, 0 to 2 percent slopes (NoA).—This is a deep, well-drained soil on uplands. Its main horizons are—

0 to 16 inches, dark-gray to gray loamy sand.
16 to 36 inches, yellowish-brown, friable sandy loam or sandy clay loam.
36 to 54 inches, yellowish-brown, friable sandy clay loam with distinct, red and light-gray mottles that are more numerous in the lower part.
54 to 60 inches, mottled red, light-gray, brownish-yellow, and yellowish-brown, friable sandy clay; massive.

The surface layer ranges from dark gray to gray or grayish brown. Its color depends on the content of organic matter. The subsoil ranges from yellowish brown to strong brown in color, from sandy loam to sandy clay loam in texture, and from 2 to 4 feet in thickness. Included in the mapped areas of this soil are small areas of Goldsboro, Lynchburg, Lakeland, and similar soils. These inclusions are too small to be mapped separately.

This soil has a thick, permeable root zone, is easily tilled, and can be worked within a wide range of moisture content. Because the soil is nearly level, surface runoff is slow. Infiltration and the available moisture capacity are moderately high. The erosion hazard is so slight that practices of control generally are not needed, but some soil blowing occurs early in spring in areas that are exposed, dry, and freshly plowed. This soil is medium to high in fertility, is medium acid, and generally contains a medium amount of organic matter.

Norfolk loamy sand, 0 to 2 percent slopes, is one of the most extensive soils in this county and one of the most important for production of crops. This soil is well suited to intensive cultivation of all locally grown crops. It responds well to good management, including heavy applications of fertilizer. (Capability unit I–1; woodland suitability group 3)

Norfolk loamy sand, 2 to 6 percent slopes (NoB).—This soil is similar to Norfolk loamy sand, 0 to 2 percent slopes, in many respects, but it is more sloping and, in areas with 5 or 6 percent slopes, has a slightly thinner surface layer. Surface runoff is medium, and the erosion hazard is slight to moderate. Soil blowing occurs early in spring if the soil is exposed and dry.

Good management of this soil helps to reduce runoff and erosion. This management should provide contour cultivation, sodded waterways, suitable crop rotations, and other practices. In large areas stripcropping is suitable. This soil produces high yields. It responds well to heavy fertilization and other good management. (Capability unit IIe–1; woodland suitability group 3)

Norfolk loamy sand, 2 to 6 percent slopes, eroded (NoB2).—This gently sloping soil is similar to Norfolk loamy sand, 0 to 2 percent slopes, in most characteristics,

but it has a thinner surface layer that is more variable in thickness. The surface layer is 4 to 8 inches thick. In a few small areas subsoil material has been mixed with the surface layer through tillage and has imparted a yellowish color to it. Included with this soil are small, severely eroded areas or washes. Also included are narrow areas of Local alluvial land that are too small to be mapped separately.

This soil has a more variable and generally smaller content of organic matter than Norfolk loamy sand, 0 to 2 percent slopes, and somewhat slower infiltration. Infiltration and surface runoff are medium. Tilth is generally good.

Although this soil responds well to fertilization, it produces slightly lower yields than Norfolk loamy sand, 0 to 2 percent slopes. Contour tillage is more difficult because of the shorter, more irregular slopes and the small washes. The erosion hazard is moderate. Uncultivated areas revert naturally to pines if a source of seed is nearby. (Capability unit IIe–1; woodland suitability group 3)

Norfolk loamy sand, 6 to 10 percent slopes, eroded (NoC2).—This strongly sloping soil has a thinner, more variable surface layer than Norfolk loamy sand, 0 to 2 percent slopes, and in some places a slightly thinner subsoil. The surface layer is 4 to 8 inches thick, and the subsoil is 2 to 3 feet thick. Slopes are shorter and rougher, and a few small gullies occur in places. Runoff is more rapid, and the hazard of erosion is moderate to severe.

This soil is well suited to all locally grown crops, but yields are lower than those on Norfolk loamy sand, 0 to 2 percent slopes, and more intensive management is needed to control erosion. The management should provide close-growing crops in rotation with cultivated crops. Yields of Coastal bermudagrass, bahiagrass, and sericea lespedeza are better than those of row crops. (Capability unit IIIe–1; woodland suitability group 3)

Norfolk loamy fine sand, 0 to 2 percent slopes (NfA).—This soil is similar to Norfolk loamy sand, 0 to 2 percent slopes, but contains finer textured sand throughout the profile. The surface layer is loamy fine sand that generally ranges from 14 to 15 inches in thickness. The yellowish-brown subsoil is mainly fine sandy clay instead of sandy clay, but in places it ranges from sandy clay to fine sandy loam or fine sandy clay loam.

This soil produces about the same yields as Norfolk loamy sand, 0 to 2 percent slopes, is suited to the same crops, and should be managed in the same way. (Capability unit I–1; woodland suitability group 3)

Norfolk loamy fine sand, 2 to 6 percent slopes (NfB).—This soil is more sloping than Norfolk loamy sand, 0 to 2 percent slopes, and contains finer textured sand throughout its profile. The loamy fine sand surface layer ranges from 12 to 14 inches in thickness. The yellowish-brown subsoil is fine sandy clay loam in most places, but it ranges from fine sandy loam to fine sandy clay. In most other characteristics this soil is similar to Norfolk loamy sand, 0 to 2 percent slopes. Furthermore, it is suited to the same crops, responds to fertilization and other management in about the same way, and produces about the same yields. Erosion is a slight hazard, but drainage from runoff can be reduced by tilling on the contour and rotating crops. (Capability unit IIe–1; woodland suitability group 3)

Norfolk loamy fine sand, thick surface, 0 to 2 percent slopes (NkA).—This soil has a thicker, finer textured surface layer than Norfolk loamy sand, 0 to 2 percent slopes, but is similar to that soil in most other characteristics. The surface layer is generally 24 inches thick but ranges from 18 to 30 inches in thickness. The sand fraction throughout the profile is fine rather than medium or coarse. The yellowish-brown subsoil is 2 or 3 feet thick and ranges from fine sandy loam to fine sandy clay.

The available moisture capacity of the thick loamy fine sand surface layer is low, and at times young or shallow-rooted plants are damaged by drought. The infiltration and permeability of the surface layer are rapid, and moisture is readily taken into the moderately permeable subsoil. The subsoil has good available moisture capacity.

This soil is well suited to all locally grown crops. It is especially well suited to watermelons and sweetpotatoes and to Coastal bermudagrass, sericea lespedeza, bahiagrass, and other deep-rooted perennials. Heavier fertilization is needed on this soil than on Norfolk loamy sand, 0 to 2 percent slopes, if yields are to be the same. (Capability unit IIs–1; woodland suitability group 4)

Norfolk loamy fine sand, thick surface, 2 to 6 percent slopes (NkB).—This soil is more sloping than Norfolk loamy sand, 0 to 2 percent slopes, and has a thicker, finer textured surface layer. The surface layer is 24 inches thick in most places, but it ranges from 18 to 30 inches in thickness. The sand fraction in each horizon is fine. The yellowish-brown subsoil ranges from fine sandy loam to fine sandy clay and is 2 to 3 feet thick.

The available moisture capacity of the thick loamy fine sand surface layer is low, and at times young and shallow-rooted plants are damaged by drought. The infiltration and permeability of the surface layer are rapid, and moisture is readily taken into the moderately permeable subsoil. The subsoil has good available moisture capacity.

This soil is well suited to all locally grown crops. It is especially well suited to watermelons and sweetpotatoes and to Coastal bermudagrass, bahiagrass, sericea lespedeza, and other deep-rooted perennials. Because of a slight erosion hazard, contour cultivation and crop rotations are needed. Heavier fertilization is needed on this soil than on Norfolk loamy sand, 0 to 2 percent slopes, if yields are to be the same. (Capability unit IIs–1; woodland suitability group 4)

Norfolk sand, thick surface, 0 to 2 percent slopes (NsA).—The surface layer of this soil is thicker and coarser textured than that of Norfolk loamy sand, 0 to 2 percent slopes. It ranges from 18 to 30 inches in thickness but is about 24 inches thick in most places. The yellowish-brown sandy loam to sandy clay loam subsoil is 2 to 3 feet thick.

The available moisture capacity of the thick sand surface layer is low, and at times young or shallow-rooted plants are damaged by drought. The infiltration and permeability of the surface layer are rapid, and the subsoil has moderate permeability and good available moisture capacity.

This soil is extensive and agriculturally important. It is well suited to all locally grown crops and is especially well suited to watermelons and sweetpotatoes. Bahiagrass and Coastal bermudagrass are excellent for hay and pasture. Because this soil is more susceptible to blowing than Norfolk loamy sand, 0 to 2 percent slopes, young plants and seedlings are more likely to be damaged. In addition, slightly heavier fertilization is required to produce equal yields. (Capability unit IIs–1; woodland suitability group 4)

Norfolk sand, thick surface, 2 to 6 percent slopes (NsB).—This soil is more sloping than Norfolk loamy sand, 0 to 2 percent slopes, and has a thicker, coarser textured surface layer. The sandy surface layer ranges from 18 to 30 inches in thickness, but it is about 24 inches thick in most places. The yellowish-brown sandy loam to sandy clay loam subsoil is 2 to 3 feet thick. Although slopes are generally uniform and smooth, a few small gullies or washes occur.

The available moisture capacity of the thick sand surface layer is low, and at times young or shallow-rooted plants are damaged by drought. The infiltration and permeability of the surface layer are rapid, but the subsoil has moderate permeability and good available moisture capacity. Runoff is slight to moderate.

This soil is extensive and agriculturally important. It is suited to all locally grown crops and is especially well suited to watermelons and sweetpotatoes. Bahiagrass, Coastal bermudagrass, and sericea lespedeza are excellent for pasture. Young plants and seedlings are more likely to be damaged by soil blowing and drifting than on Norfolk loamy sand, 0 to 2 percent slopes. A slight but significant erosion hazard is likely unless this soil is tilled on the contour and kept in close-growing crops half of the time. If this soil is to produce yields equal to those on the less sloping Norfolk soils, heavier fertilization is needed. (Capability unit IIs–1; woodland suitability group 4)

Norfolk sand, thick surface, 6 to 10 percent slopes (NsC).—This soil is much more sloping than Norfolk loamy sand, 0 to 2 percent slopes, and has a thicker, coarser textured surface layer. The surface layer is generally about 24 inches thick, but it ranges from 18 to 30 inches in thickness. The yellowish-brown sandy loam to sandy clay subsoil is 2 to 3 feet thick. A few gullies or small washes occur in some places.

The available moisture capacity in the thick surface layer is low, and at times young or shallow-rooted plants are damaged by drought. A more limiting hazard than drought, however, is erosion, for runoff is rapid and the sand washes easily. Permeability is rapid in the surface layer and moderate in the subsoil.

This soil is suited to all locally grown crops, but it produces lower yields than Norfolk loamy sand, 0 to 2 percent slopes. Intensive management is needed to prevent the loss of soil through washing or blowing. This management should provide contour cultivation and close-growing crops on the soil two-thirds of the time. (Capability unit IIIe–5; woodland suitability group 4)

Okenee Series

The Okenee series consists of wet, very poorly drained soils on stream terraces. These soils formed in beds of sandy loam to sandy clay loam that washed from the Coastal Plain uplands and was deposited in nearly level areas or in shallow depressions. Their thick, black surface layer is high in organic-matter content. In wet periods the water table is near the surface. Okenee soils are very strongly acid and are medium in natural fertility. Slopes range from 0 to 2 percent.

The Okenee soils adjoin the Kalmia, Izagora, and Myatt soils, all of which are on stream terraces. The Okenee soils are similar to those soils in texture, but they lie at a lower level and are more poorly drained. Their surface layer is thicker and blacker than that of the Myatt soils, and their subsoil does not show yellowish brown as does the subsoil of the Kalmia and Izagora soils. Okenee soils also adjoin the Wahee and Leaf soils on stream terraces and are more poorly drained than those soils. Okenee soils have a coarser textured, more friable subsoil than Wahee and Leaf soils, lack the brownish yellow of the Wahee soils, and have a thicker black surface layer than the Leaf soils.

Although Okenee soils are on terraces along the Edisto and Salkehatchie Rivers, they are not adjacent to the rivers. Other soils on terraces are between them and the rivers and, in places, surround the Okenee soils and separate them from the uplands. Okenee soils make up only about 0.3 percent of the county and are in native blackgum, sweetgum, poplar, bay, water oak, and some loblolly pine.

Okenee loam (Ok).—This is a deep, very poorly drained soil of the stream terraces. Its main horizons are—

0 to 18 inches, black, very friable loam containing many roots.
18 to 26 inches, very dark gray or grayish-brown, very friable to loose loamy sand.
26 to 34 inches, very dark gray, firm sandy clay.
34 inches +, grayish-brown, loose loamy sand and sand.

The surface layer generally ranges from 14 to 22 inches in thickness, but in a few places near Myatt soils, it is as little as 8 inches thick. The subsoil ranges from sandy loam to sandy clay.

Although this soil has medium available moisture capacity, it supplies a large amount of water to plants because the water table is near the surface. Permeability is moderate in the surface layer and is moderately slow or slow in the subsoil. Infiltration is medium, and surface runoff is slow. This soil is medium acid and medium in natural fertility.

All of this soil is wooded. Drainage is the main problem and is necessary if this soil is to be used for crops, pasture, or hay. Grazing wet areas may damage this soil. If areas were drained, they would be in good tilth and could be worked with machinery, though not soon after rains. Drainage also benefits woodland, but it is expensive in areas that do not have suitable outlets nearby.

Both hardwoods and pines grow rapidly on this soil. Sites suitable for dug ponds are available. (Capability unit IIIw–4; woodland suitability group 10)

Orangeburg Series

In the Orangeburg series are deep, well-drained soils that developed in beds of sandy loam and sandy clay on the higher uplands of the Coastal Plain. These soils have a dark grayish-brown surface layer and a friable, red sandy loam or sandy clay loam subsoil. They are medium to high in fertility, are strongly acid, and have a moderately permeable subsoil. Slopes range from 0 to 10 percent.

Orangeburg soils adjoin Norfolk, Marlboro, Magnolia, Eustis, Faceville, and Vaucluse soils. The subsoil of Orangeburg soils is red in contrast to the yellowish-red subsoil of Norfolk and Marlboro soils. It resembles the subsoil of the Magnolia soils in color but is coarser textured. The surface layer of the Orangeburg soils is thicker and lighter colored than that of the Magnolia soils, and the subsoil is redder and coarser textured than the yellowish-red sandy clay subsoil of Faceville soils.

Orangeburg soils are much finer textured than the sandy Eustis soils and have a red subsoil that contrasts with the yellowish-red subsoil of the Eustis. Orangeburg soils lack the firm, compact, slightly cemented subsoil of the Vaucluse soils, which generally have colors ranging from red to yellowish brown.

Orangeburg soils make up about 0.5 percent of the county. Nearly all of these soils lie on the Aiken Plateau in the northwestern part of the county. They are suited to many kinds of crops because of their medium to high fertility, good tilth, thick root zone, and good available moisture capacity. About 85 percent of their acreage is cultivated; the rest is in woods consisting of pines and hardwoods in mixed stands.

Orangeburg loamy sand, 0 to 2 percent slopes (OrA).—This soil is representative of the Orangeburg series. It is a well-drained, friable, red soil on the higher uplands of the Coastal Plain. The main horizons are—

0 to 14 inches, grayish-brown to yellowish-brown, very friable loamy sand.
14 to 67 inches, red, friable sandy clay loam with subangular blocky structure.
67 inches +, mottled red, reddish-yellow, strong-brown, and light-gray sandy clay.

The surface layer ranges from 10 to 16 inches in thickness. Its color depends on the content of organic matter and may be darker or lighter than that described. In places the subsoil is sandy loam. Included in the mapped areas of this soil are small areas of Vaucluse, Ruston, and Magnolia soils and a few gently sloping or eroded areas. These inclusions are too small to be mapped separately.

This soil has a thick, permeable root zone. Its very friable, fairly thick surface layer is generally in good tilth and can be worked within a wide range of moisture content. Surface runoff is slow, but infiltration is moderately rapid. The subsoil has moderate permeability and moderate available moisture capacity. It contains ample moisture for most crops if rainfall is normal. This soil is medium acid, medium in organic-matter content, and medium to high in natural fertility. Some soil blowing occurs early in spring in areas that are exposed, dry, or freshly plowed. Erosion is not a hazard.

This soil is suited to intensive use, and all of its small acreage is cultivated. It is well suited to all locally grown crops. If management is good and provides large additions of fertilizer and organic matter, this soil maintains its high productivity. (Capability unit I–1; woodland suitability group 3)

Orangeburg loamy sand, 2 to 6 percent slopes (OrB).—This gently sloping soil has moderate surface runoff and is more likely to erode than Orangeburg loamy sand, 0 to 2 percent slopes. The erosion hazard, however, is only slight and can be controlled by simple practices that include tilling on the contour and keeping the soil in close-growing crops half of the time.

This soil is suited to all locally grown crops. Bahiagrass, Coastal bermudagrass, and sericea lespedeza are suitable for hay or pasture. (Capability unit IIe–1; woodland suitability group 3)

Orangeburg loamy sand, 2 to 6 percent slopes, eroded (OrB2).—This eroded soil is more sloping than Orangeburg loamy sand, 0 to 2 percent slopes, and has a thinner surface layer that varies more in thickness. The surface layer is 4 to 8 inches thick. Included in mapping this soil are small areas in which red sandy clay material has been brought up from the subsoil through tillage. Also included are small areas where the subsoil is exposed. Small washes have been caused by concentrated runoff water. In some places the gentle slopes are rough and somewhat irregular.

This soil has slower infiltration and more rapid runoff than Orangeburg loamy sand, 0 to 2 percent slopes, and the erosion hazard is more severe. Furthermore, contour cultivation is somewhat more difficult to establish because of the small washes and the irregular slopes. Simple practices are needed to control the moderate erosion.

This soil is suited to all locally grown crops and to pasture and hay. (Capability unit IIe–1; woodland suitability group 3)

Orangeburg loamy sand, 6 to 10 percent slopes, eroded (OrC2).—This eroded soil is much more sloping than Orangeburg loamy sand, 0 to 2 percent slopes, and has a thinner surface layer that varies more in thickness. The surface layer is 4 to 8 inches thick. In small included areas, tillage has mixed the red sandy clay loam subsoil material with the surface soil. In some places the subsoil is exposed. Small washes have been formed where runoff from higher areas has concentrated. The slopes of this soil are fairly narrow and, in places, are irregular.

Tilth generally is not so good in this soil as in the uneroded soil. The small washes and irregular slopes make contour tillage difficult. Because runoff is more rapid than that on Orangeburg loamy sand, 0 to 2 percent slopes, the erosion hazard is greater and ranges from moderate to severe. More intensive practices are needed to control erosion. Contour tillage is needed, and close-growing crops and legumes should be kept on the soil for a longer time.

This soil is suited to all locally grown crops and to grasses and legumes for pasture and hay. (Capability unit IIIe–1; woodland suitability group 3)

Plummer Series

The Plummer series consists of low, wet, poorly drained soils that developed in marine sediments of sand and loamy sand on the Coastal Plain uplands. The Plummer soils have a dark-gray to black loamy sand surface layer and a gray, sandy subsoil. They occur in depressions that are generally at the head of and along drainageways and in seepage areas on gently sloping hillsides. These soils are strongly acid and low in natural fertility and plant nutrients. Their surface layer contains much organic matter. Slopes range from 0 to 2 percent.

The Plummer soils occur near the Klej, Lynchburg, Rains, Portsmouth, and Coxville soils and in some ways resemble them. They are more poorly drained than the Klej and Lynchburg soils but are similar to the Klej soils in texture and are coarser textured than the Lynchburg soils. The dominantly gray subsoil of the Plummer soils lacks the mottled light yellowish brown of the Klej and Lynchburg soils. Both the surface layer and the subsoil of the Plummer soils are similar to those of the Rains, Portsmouth, and Coxville soils in color, but the subsoil is much sandier. Plummer soils lack the thick, black surface layer of the Portsmouth soils.

Plummer soils are distributed in small areas that amount to about 1 percent of the county. Most of their acreage is

wooded, but a small part is used for pasture or hay. Even if these soils are drained, they are not suited to crops. Fair pasture can be established in drained areas that are fertilized and limed. The native vegetation is mostly blackgum, water oak, sweetgum, and other hardwoods common in swamps. Some loblolly pine and pond pine occur. The understory commonly consists of canes, briers, and gallberry. Carpetgrass grows in some cleared areas that are used as unimproved pasture.

Plummer loamy sand (Pm).—This is a poorly drained, sandy soil. Its main horizons are—

0 to 6 inches, very dark gray, very friable loamy sand that is high in organic-matter content.
6 to 9 inches, gray or light-gray, very friable to loose loamy sand that contains a few roots.
9 to 50 inches, gray to light-gray, loose loamy sand.

The surface layer ranges from 4 to 6 inches in thickness and, in some places, is black instead of very dark gray. In places the subsoil has a few, distinct, yellowish-brown and strong-brown mottles. Included with this soil are small areas of Rains and Klej soils that are too small to be mapped separately.

This poorly drained soil has a high water table and frequently receives additional water that seeps from higher soils. Runoff is generally slow. The use of this soil for crops and pasture is limited mainly by the high water table but also by low natural fertility and very strong acidity. Because ditchbanks tend to cave, establishing drainage generally is not practical. Because of wetness much organic matter has accumulated in the surface layer. Individual areas of this soil are small and are distributed throughout the county. (Capability unit Vw–2; woodland suitability group 11)

Portsmouth Series

The Portsmouth series consists of very poorly drained soils that developed in beds of wet sandy loam and sandy clay sediments of the middle and lower Coastal Plain. These soils occupy wet depressions, some of which are the small, rounded or elliptical depressions called Carolina bays. The Portsmouth soils have a thick, black surface layer and a gray subsoil. In many places the water table rises to the surface. The Portsmouth soils have a high content of organic matter in the surface layer, are very strongly acid, and are medium in fertility. Slopes range from 0 to 2 percent.

Portsmouth soils adjoin the Rains, Plummer, Coxville, Lynchburg, and Klej soils and in some ways resemble them, but Portsmouth soils have a thicker black surface layer than those soils, lie at a lower level, and are more poorly drained. Also, they are generally grayer and less mottled in the subsoil. Portsmouth soils have a finer textured subsoil than Plummer and Klej soils and a coarser textured subsoil than the Coxville soils. In texture the subsoil of Portsmouth soils is similar to that of the Rains and Lynchburg soils.

The Portsmouth soils occupy about 5.2 percent of the county and are mainly in the central and southern parts. Most areas of these soils are in woods consisting of cypress, blackgum, sweetgum, water oak, poplar, and a few pines. Only a small part is cultivated because the use for crops is limited by the high water table and very poor drainage. Drained areas, however, are generally in good tilth, have a deep root zone, and have high available moisture capacity.

Portsmouth loam (Po).—This is a deep, very poorly drained soil in depressions of the Coastal Plain. Its main horizons are—

0 to 12 inches, black, friable loam that is high in organic-matter content.
12 to 19 inches, gray, very friable sandy loam with a few, fine, yellowish-brown mottles.
19 to 44 inches, gray, firm sandy clay mottled with strong brown and yellowish brown; ground water present in many places.
44 inches +, gray, massive, firm sandy clay with many, coarse, distinct, mottles of brownish yellow.

In most places the surface layer ranges from 8 to 14 inches in thickness, but in some places it is as much as 22 inches thick. The subsoil ranges from sandy loam to sandy clay. In places the yellowish-brown mottles in the subsoil are faint or do not occur. Included in the mapped areas of this soil, in places too small to be mapped separately, are a few areas of Coxville and Rains soils.

This soil has slow surface runoff. It is ponded for long periods unless it is drained and the drains are kept free. Permeability and infiltration are moderate. The available moisture capacity is medium, but ample moisture is available for crops. The organic-matter content is high, natural fertility is medium, and the response to added fertilizer is good in drained areas. Lime is needed on this strongly acid soil and should be applied in amounts indicated by soil tests.

Excess water is the principal hazard in cultivated areas, but adequate drainage can be provided by open ditches or tile. Many small areas that occur within larger areas of other soils are planted to the same crops as the other soils and are worked along with them. If this soil is drained, it is suited to practically all crops grown in the county. The main crops are cotton, soybeans, small grain, corn, hay, pasture, and truck crops. Because the surface layer is soft in wet periods, grazing should be prohibited so that damage through trampling is prevented. Loblolly pine and desirable hardwoods grow well. Sites suitable for dug ponds are available. (Capability unit IIIw–4; woodland suitability group 10)

Portsmouth sandy loam (Pr).—The surface layer of this soil is coarser textured than that of Portsmouth loam and contains slightly less organic matter. It generally ranges from 8 to 14 inches in thickness. The gray subsoil is sandy loam in most places, but it ranges from sandy loam to sandy clay.

This soil is suited to the same crops as Portsmouth loam, has the same limitations, and requires the same amount of drainage. (Capability unit IIIw–4; woodland suitability group 10)

Rains Series

The Rains series consists of poorly drained, nearly level, low soils that developed in beds of sandy loam to sandy clay loam on the uplands of the middle and lower Coastal Plain. These soils have a dark-gray to black surface layer and a gray sandy clay loam subsoil. They are strongly acid and low in fertility. Slopes range from 0 to 2 percent.

The Rains soils adjoin the Lynchburg, Portsmouth, Plummer, Coxville, and Grady soils and in some ways

resemble them. They are similar to the Lynchburg soils in texture but are more poorly drained and are more mottled and grayer in the subsoil. They are finer textured than the sandy Plummer soils and are much coarser textured than the Coxville and Grady soils. Rains soils are similar to the Portsmouth soils in texture but are better drained and have a thinner, grayer surface layer that contrasts with the thick, black surface layer of Portsmouth soils.

About 7.4 percent of this county is in Rains soils, which are mainly in the central and southeastern parts. The use of these soils for crops is limited mainly by excess water and low fertility. Adequately drained areas are suited to pasture, but only small areas are pastured or cultivated. Nearly all the acreage is in water oak, blackgum, and sweetgum, but some is in cypress, loblolly pine, and pond pine. Because these soils have a high water table, they are suited to hardwoods and loblolly pine.

Rains loamy sand (Ra).—This is a poorly drained, low-lying soil. Its main horizons are—

0 to 6 inches, black, very friable loamy sand.
6 to 15 inches, gray, very friable loamy sand.
15 to 27 inches, gray, friable sandy clay loam with few, faint, yellowish-brown mottles; weak, medium, subangular blocky structure.
27 to 39 inches, gray, friable sandy clay loam with a few, faint, pale-olive mottles; weak, subangular blocky structure.
39 inches +, gray sandy loam or sandy clay loam with many, coarse, prominent, yellow mottles.

The surface layer ranges from dark gray to black in color and from 4 to 8 inches in thickness. The depth to prominent mottles ranges from 15 to 30 inches. In many places the subsoil ranges from sandy clay loam to sandy loam. Included in the mapped areas of this soil are a few areas that have a sandy loam surface layer. Also included are areas of Plummer, Lynchburg, and Portsmouth soils that are too small to be mapped separately.

Rains loamy sand has very slow surface runoff and a water table that is frequently high. Permeability is moderately slow, and the available moisture capacity is medium. The soil is very strongly acid, low in fertility, and medium in organic-matter content.

The use of this soil for crops and pasture is limited by the high water table and the excessive water. Drainage is difficult because suitable outlets for ditches are far away or are lacking. The few pastured areas generally are in carpetgrass. Dallisgrass can be grown for pasture if this soil is adequately drained and limed. Woodland is the best use. (Capability unit IVw 3; woodland suitability group 7)

Ruston Series

The Ruston series is made up of deep, level to sloping, well-drained soils that developed on the Coastal Plain uplands from thick beds of sandy and clayey marine sediments. These soils have a very light brownish-gray to grayish-brown loamy sand surface layer that is underlain by light yellowish-brown material. At a depth of 12 to 30 inches, the subsoil is yellowish-red sandy clay loam. A distinctly mottled red, yellowish-brown, and light-gray layer occurs at a depth of 36 to 55 inches. Slopes range from 0 to 10 percent.

Ruston soils are well drained throughout. Infiltration and permeability are moderate, and the available moisture capacity is generally medium. These soils are medium to low in content of organic matter and are medium in their natural supply of plant nutrients.

The Ruston soils adjoin the Norfolk, Lakeland, Caroline, Vaucluse, Eustis, Faceville, and Coxville soils. They are similar to the Norfolk soils, but their subsoil is yellowish red or red instead of yellowish brown. Ruston soils are finer textured throughout than the Lakeland and Eustis soils, which are excessively drained. They lack the compact horizon that is typical of the Caroline and Vaucluse soils, and they have no distinct mottling in the subsoil. Ruston soils are coarser textured throughout and are better drained than the Coxville soils.

The Ruston soils are extensive throughout the northern and western parts of the county, but they also occur in other parts. They make up about 4.5 percent of the county. Their native vegetation consisted of pines and hardwoods in mixed stands. These soils are normally in good tilth and have a thick root zone. Except in areas where the surface layer is thick, Ruston soils have good available moisture capacity. The mildly sloping areas are suitable for many kinds of locally grown crops.

Ruston loamy sand, 2 to 6 percent slopes (RmB).—This is a well-drained soil on uplands. Its main horizons are—

0 to 7 inches, light brownish-gray, loose loamy sand.
7 to 14 inches, light yellowish-brown, loose loamy sand.
14 to 41 inches, yellowish-red, friable sandy clay loam.

The loamy sand surface layer ranges from dark grayish brown to light grayish brown in color and from 12 to 18 inches in thickness. In some places the subsoil is red to strong-brown sandy loam. Included in the mapped areas of this soil are small areas of other soils that are too small to be mapped separately.

This soil has a thick, permeable root zone, is easily tilled, and can be worked within a wide range of moisture content. Infiltration is moderately rapid, and the available moisture capacity is moderate. Surface runoff is rapid enough to cause a slight erosion hazard, and early in spring some soil is blown from areas that are exposed, dry, and freshly plowed. This soil contains a medium to small amount of organic matter, is medium in fertility, and is medium acid. It is suited to most locally grown crops, and it responds to good management that includes adequate fertilization. (Capability unit IIe–1; woodland suitability group 3)

Ruston loamy sand, 0 to 2 percent slopes (RmA).—This soil is less sloping than Ruston loamy sand, 2 to 6 percent slopes, but is similar to that soil in other respects. It produces high yields of many kinds of locally grown crops because it has a thick root zone, has good available moisture capacity, and responds well to fertilization and other good management. Tilth is generally good, acidity is medium, and the organic-matter content is medium to low. Because runoff is slow, water erosion is not likely, but spring winds blow soil material from large fields that are dry or freshly plowed. (Capability unit I–1; woodland suitability group 3)

Ruston loamy sand, 2 to 6 percent slopes, eroded (RmB2).—This eroded soil has a surface layer that is generally thinner and is more variable in thickness than that of Ruston loamy sand, 2 to 6 percent slopes. In cultivated areas the surface layer ranges from 4 to 14 inches in thickness and from brown to reddish brown in color. In a few places material from the subsoil has been mixed with

the surface layer through tillage. These places have slower infiltration than uneroded areas, and tilth is only fair.

This soil produces high yields of many kinds of locally grown crops because it has a thick root zone, holds a good supply of moisture, and responds well to fertilization and other good management. Runoff is medium, and erosion in cultivated areas is slight to moderate. This soil is medium acid and medium to low in organic-matter content. (Capability unit IIe–1; woodland suitability group 3)

Ruston loamy sand, 6 to 10 percent slopes (RmC).—This soil has a profile similar to that of Ruston loamy sand, 2 to 6 percent slopes. The surface layer of light brownish gray or grayish brown is 12 to 18 inches thick and is underlain by a yellowish-red to strong-brown sandy clay loam subsoil.

This soil generally is in good tilth and responds well to fertilization. It is suited to cultivated crops, but it is better suited to pasture, perennials, and pine trees because runoff is moderate to rapid and erosion is a moderate hazard in cultivated areas. (Capability unit IIIe–1; woodland suitability group 3)

Ruston loamy sand, 6 to 10 percent slopes, eroded (RmC2).—This eroded soil is more sloping than Ruston loamy sand, 2 to 6 percent slopes, and has a thinner surface layer that varies more in thickness. The surface layer ranges from 4 to 14 inches in thickness. A few to many eroded patches have had their surface layer mixed with the subsoil through tillage. These patches are reddish yellow. They have slower infiltration than uneroded areas, and tilth is only fair. This soil is medium acid, medium to low in organic-matter content, and medium in natural fertility.

This soil can produce many kinds of locally grown crops because it has good moisture capacity, a deep root zone, and good response to fertilization and other good management. The soil is well suited to pasture, perennials, and pine trees. Because of the moderate to rapid runoff, the hazard of erosion is moderately severe. (Capability unit IIIe–1; woodland suitability group 3)

Ruston loamy sand, thick surface, 0 to 2 percent slopes (RsA).—The surface layer of this soil is thicker and generally lighter colored than that of Ruston loamy sand, 2 to 6 percent slopes. It is generally 20 inches thick, but the range is from 18 to 30 inches. The subsoil is sandy loam in many places. Included in the mapped areas of this soil, in areas too small to be mapped separately, are Ruston loamy sand without a thick surface layer, Norfolk loamy sand with a thick surface layer, and Eustis loamy sand.

Although runoff is slow, water does not remain on this soil, for permeability and infiltration are moderately rapid. Erosion is only a slight hazard. The root zone has low available moisture capacity and cannot supply enough moisture to shallow-rooted annuals or seedlings during dry periods. Consequently, this soil is often slightly droughty. The content of organic matter and of natural plant nutrients is low, but the soil responds well to fertilization and other good management. It is generally in good tilth and is well suited to mechanized farming.

The total acreage of this soil is small, but there are many large individual areas. The main crops are cotton, soybeans, small grain, and corn. Sericea lespedeza, Coastal bermudagrass, and bahiagrass are commonly grown for pasture. Cultivation can be intensive. Plowing under cover crops and making good use of crop residue build up organic matter and improve the available moisture capacity. Heavy fertilization increases the amount of crop residue, as well as crop yields; thus, it indirectly increases organic matter. (Capability unit IIs–1; woodland suitability group 4)

Ruston loamy sand, thick surface, 2 to 6 percent slopes (RsB).—The surface layer of this soil is thicker and generally lighter colored than that of Ruston loamy sand, 2 to 6 percent slopes. The hazard of erosion is slight. The hazard of drought is more serious than that of erosion, though soil blowing does occur in dry or freshly plowed fields. (Capability unit IIs–1; woodland suitability group 4)

Ruston loamy sand, thick surface, 6 to 10 percent slopes (RsC).—The surface layer of this soil is thicker and generally lighter colored than that of Ruston loamy sand, 2 to 6 percent slopes, and slopes are stronger. The medium runoff causes a moderate erosion hazard that can be reduced by tilling on the contour, disposing of water in sodded waterways, maintaining organic matter, and growing close-growing crops. (Capability unit IIIe–5; woodland suitability group 4)

Rutlege Series

The Rutlege series is made up of level or nearly level, very poorly drained soils that formed from beds of sand and loamy sand on the Coastal Plain. These soils have a black loamy sand surface layer. At a depth of 8 to 16 inches, the subsoil is gray loamy sand or sand. The depth to the finer materials ranges from 30 to 45 inches or more. Slopes range from 0 to 2 percent.

Infiltration and permeability are rapid in these soils, and the available moisture capacity is medium to low. Although the organic-matter content is high, the soils are low in natural fertility and are strongly acid.

The Rutlege soils adjoin the Eustis, Lakeland, Klej, Plummer, and Portsmouth soils. They are more poorly drained than the Eustis or Lakeland soils and contain more organic matter in the surface layer. The surface layer of Rutlege soils is thicker and contains more organic matter than that of the Klej and Plummer soils, and the subsoil is sandier than that of the Portsmouth soils.

The Rutlege soils amount to about 0.5 percent of Bamberg County. They are widely scattered throughout the county but occur mostly in the eastern and southern parts. These soils are in depressions and bays or are in low flats at the head of drainageways. They are mostly in cutover forest or are idle; only about 10 percent of their acreage is in cultivated crops or pasture. The native vegetation was gum, water oak, cypress, some loblolly and pond pines, and an undergrowth of canes and water-tolerant grasses and shrubs. The use of these soils is limited because they are wet, water moves rapidly through them if they are drained, and ditchbanks are unstable.

Rutlege loamy sand (Ru).—This is a very poorly drained soil. Its main horizons are—

0 to 10 inches, black, very friable loamy sand.
10 to 36 inches +, gray, loose loamy sand.

The surface layer ranges from 8 to 16 inches in thickness and from black to very dark gray in color. The sub-

soil ranges from loamy sand to sand and, in places, is stained with brown.

This soil is rapidly permeable but has very slow runoff and is ponded for long periods unless it is drained. Although its organic-matter content is high, natural fertility is low and acidity is strong. In most places the water table is high most of the time. In places where the water table is not near the surface, this sandy, porous soil is readily permeated by roots, air, and moisture.

The use of this soil is limited mainly by wetness and low fertility. Nearly all areas are in mixed stands of cypress and gum, but a few pines grow in some areas. Although this soil is generally not suited to cultivation, cleared and drained areas are suited to pasture, hay, and some truck crops. (Capability unit Vw–2; woodland suitability group 11)

Swamp (Sw)

Swamp occurs along all of the major streams in the county. It is flooded frequently and is ponded most of the time. The surface layer ranges from sand to clay in texture and from black to gray in color. In places it is sand, loam, sandy clay loam, sandy clay, or clay. The content of organic matter varies, and in some places the surface layer is a thick, mucky loam that is underlain by sand or clay.

The vegetation is sweetgum, blackgum, cypress, water-tolerant oaks, and a few pines. The undergrowth consists of briers, vines, and, in some places, water-tolerant grasses.

Many areas of this land are good sites for ponds, and many ponds have been built. Swamp is best used for ponds and for the production of hardwoods. (Capability unit VIIw–1; woodland suitability group 15)

Vaucluse Series

In the Vaucluse series are shallow to moderately deep, well-drained soils of the Sandhills and the middle and upper Coastal Plain. These soils formed from beds of sandy and clayey marine sediments. They have a dark-brown to dark grayish-brown loamy sand surface layer that is underlain by light yellowish-brown loamy sand. The upper subsoil is red sandy clay loam that is compact and weakly cemented. At a depth of 10 to 20 inches, there is a distinctly mottled layer of red, gray, and yellowish brown. These soils are moderate to slow in permeability and are low in available moisture capacity. They are also low in natural fertility and in organic-matter content. Slopes range from 6 to 25 percent.

The Vaucluse soils occur near the Lakeland, Eustis, Norfolk, Ruston, and Gilead soils, all of which lack the weakly cemented layer that is characteristic of the Vaucluse soils. The Vaucluse soils are well drained, but the Lakeland and Eustis soils are excessively drained. Vaucluse soils are similar to the Ruston soils in color but are redder in the subsoil than the Norfolk and Gilead soils.

The Vaucluse soils are widely scattered throughout the county but are mainly in the northwestern and western parts. They occupy about 13 percent of the county and are mostly in sloping and steep areas and on the sharp breaks of streams. The native vegetation consisted of longleaf and loblolly pines, turkey, bluejack, and taller growing oaks, and some hickory. Most of the acreage is now in cutover pine and oak, and little is cultivated. The suitability of these soils for cultivation is limited by the compact, cemented subsoil that is near the surface.

Vaucluse loamy sand, 6 to 10 percent slopes, eroded (VaC2).—The main horizons of this soil are—

0 to 8 inches, dark grayish-brown, loose loamy sand.
8 to 19 inches, red, firm sandy clay loam streaked with yellowish brown.
19 to 30 inches +, red, firm sandy clay loam with coarse mottles of light gray, yellowish brown, and brownish yellow.

The surface layer ranges from 5 to 18 inches in thickness and from dark brown to dark gray in color. The subsoil ranges from 4 to 20 inches in thickness and from sandy clay loam to sandy loam. Where the subsoil is sandy loam, it varies in firmness and appears to be slightly cemented. Included in the mapped areas of this soil are small areas of Ruston, Gilead, Faceville, Eustis, and Lakeland soils that are too small to be mapped separately. Also included are small areas where the subsoil is exposed and small areas that contain shallow gullies.

This soil is low in natural fertility, low in plant nutrients, and strongly acid. Surface runoff is rapid, but its speed varies somewhat with the thickness of the surface layer and the firmness of the subsoil. The subsoil is generally slowly permeable. It hardens as it dries and, by restricting the depth to which roots can grow, limits the moisture available to plants. Because surface runoff is rapid, the erosion hazard in cultivated fields is severe.

This soil occurs mostly on short, sharp breaks next to streams and drainageways. Because of the severe erosion hazard, the soil is not suitable for cultivation. It is best suited to Coastal bermudagrass and bahiagrass for pasture and hay. Pine trees grow slowly and are susceptible to windthrow. (Capability unit IVe–4; woodland suitability group 14)

Vaucluse loamy sand, 15 to 25 percent slopes, eroded (VaE2).—This steep soil has a thinner surface layer than Vaucluse loamy sand, 6 to 10 percent slopes, eroded. The surface layer of dark grayish-brown loamy sand is only 5 to 10 inches thick. At a depth of about 14 inches the subsoil is firm, slightly cemented, and mottled with reddish colors. Severely eroded patches are common. In these patches the red subsoil is exposed, infiltration is slow, and tilth is poor.

This soil is not suitable for cultivation and is poorly suited to pasture and hay. Its small total acreage occurs on sharp breaks paralleling drainageways. (Capability unit VIe–2; woodland suitability group 14)

Vaucluse sand, thick surface, 6 to 10 percent slopes (VcC).—The surface layer of this soil is thicker than that of Vaucluse loamy sand, 6 to 10 percent slopes, eroded. It consists of sand that is grayish brown in the upper part and light yellowish brown to pale brown in the lower. The subsoil is 4 to 10 inches thick. At a depth of 18 to 30 inches, it consists of reddish, firm sandy clay loam that, in places, is mottled. The thick, coarse-textured surface soil permits rapid infiltration, but it has low available moisture capacity. The slowly permeable subsoil does not readily absorb the excess water. Erosion is a hazard in cultivated fields.

This soil is not suitable for cultivation and generally produces low yields. It is suited to Coastal bermudagrass and bahiagrass but is mostly in trees. The trees are not

subject to windthrow. (Capability unit IIIe–4; woodland suitability group 14)

Vaucluse soils, 10 to 15 percent slopes, eroded (VsD2).—This soil is more variable in profile characteristics than Vaucluse loamy sand, 6 to 10 percent slopes, eroded. The surface soil generally is dark grayish-brown to grayish-brown loamy sand. The subsoil is mainly firm to friable, red to reddish-yellow sandy clay loam, but in some places it is yellowish brown. Severely eroded areas are common, and in these the subsoil is exposed, infiltration is slow, tilth is very poor, and further erosion is an extreme hazard. A few shallow gullies occur.

Although some areas of this soil have been cultivated, they are not suited to cultivated crops. Most of the acreage is in woods, but some is in pasture. (Capability unit VIe–2; woodland suitability group 14)

Wahee Series

The Wahee series consists of moderately deep, moderately well drained or somewhat poorly drained soils that developed in beds of clay. This material was deposited along the rivers and other large streams that rise within the Coastal Plain. It was left in terraces as the beds of the streams lowered. The surface layer of these soils is gray sandy loam. The subsoil is brownish-yellow clay that is strongly mottled at a depth of 15 to 24 inches and is dominantly gray below 30 inches. These soils are strongly acid, moderately fertile, and medium in organic-matter content. Their subsoil is slowly permeable and has medium available moisture capacity. Slopes range from 0 to 2 percent.

Wahee soils commonly adjoin, or lie close to, the Kalmia, Izagora, Myatt, Leaf, and other soils of terraces. Wahee soils are much finer textured and are more poorly drained than the Kalmia soils. They are similar to the Izagora soils in drainage and are much finer textured and more plastic in the subsoil. They are better drained than the Myatt and Leaf soils but are finer textured in the subsoil than the Myatt soils and lack the gray in the upper subsoil. Wahee soils are similar to the Leaf soils in texture but are better drained, have a lighter gray surface layer, and lack the gray in the upper subsoil.

The Wahee soils amount to about 0.7 percent of the county. The largest areas are on the terraces of the Edisto River in the northern part of the county. The native vegetation was longleaf and loblolly pines, red, white, and water oaks, sweetgum, and some poplar. Although most of the acreage was once cleared and cultivated, much is now in pines. The pine trees have grown up naturally or have been planted. About 30 percent is still in cultivation. The productiveness of these soils is limited by the slowly permeable, plastic clay subsoil.

Wahee sandy loam, sandy substratum (Wa).—This is a moderately well drained or somewhat poorly drained soil with a clayey subsoil. Its main horizons are—

0 to 7 inches, dark-gray, friable sandy loam.
7 to 28 inches, brownish-yellow to light yellowish-brown, very firm clay mottled with reddish yellow, red, strong brown, and light gray; gray increases with increasing depth.
28 to 38 inches +, loose sand that is mottled strong brown and yellow in upper part and gray in the lower.

The surface layer ranges from 6 to 12 inches in thickness and from sandy loam to fine sandy loam. It is very dark gray to dark gray or very dark grayish brown. In places the subsoil is sandy clay, silty clay, or clay. The depth from the surface to the sandy substratum ranges from 24 to 40 inches.

This soil is strongly acid and is medium in organic-matter content and in natural fertility. It is generally in good tilth. The firm, slowly permeable, clayey subsoil retards development of roots and limits the amount of water available to plants in dry periods.

If this soil is well managed, it is suitable for cultivation and is well suited to pasture and pine trees. It is fairly well suited to oats, lespedeza, corn, soybeans, and cotton. Plants suitable for pasture and hay are bermudagrass, dallisgrass, bahiagrass, common lespedeza, and white clover. (Capability unit IIIw–3; woodland suitability group 6)

Use and Management of Soils

This section discusses the use and management of soils for crops and pasture, as woodland, for wildlife, and in engineering works.

Use of Soils for Crops and Pasture[1]

This subsection consists of five main parts. The first part discusses general practices used in managing soils for the production of crops and pasture. The second part explains the system of land capability classification used by the Soil Conservation Service. In the third part the soils of the county are placed in capability units, or management groups, and the use and management of these groups are discussed. The fourth part discusses generally the management of pasture. In the fifth part are two tables—one that rates the relative suitability of each soil type in the county for producing crops and pasture and one that lists estimated yields of specified crops for each soil under two levels of management. Specific management for each soil is not given, for the farmer must decide the details of his management. Available to help him are members of the Soil Conservation Service, the South Carolina Extension Service, and the Agricultural Experiment Station.

Principles of soil management

Most soils in the county require similar broad, or general, practices of management to produce satisfactory yields. These broad practices are discussed in the following pages, but before they can be carried out, several special needs of the soils must first be determined. Many of these special needs are pointed out in the descriptions of the soils and in the subsection that describes capability units. Local representatives of the Soil Conservation Service or the South Carolina Extension Service can help interpret these special soil needs in terms of soil management practices.

Estimating needs for fertilizer and lime.—Most cropland in the county requires additions of fertilizer. A knowledge of the plant nutrients that a soil can supply naturally helps in estimating the need for fertilizer. The farmer should also know how a field has been managed,

[1] By W. A. Mason, jr., conservation agronomist, Soil Conservation Service, Newberry, S.C.

and he should decide the yield level that he wishes to maintain. Also helpful is knowing the results of chemical tests and of growth tests on experimental plots. Because soils differ, some parts of a field may need more fertilizer than other parts. The soil map and soil tests show differences in soils and help the farmer determine the kinds and amounts of fertilizer needed.

The yield level that the farmer wishes to maintain has much to do with the amount of fertilizer applied. The cost of fertilization and the current market must also be considered. If crops are removed from a field year after year and the soil is leached of lime and nutrients, the field cannot continue to produce satisfactory yields unless lime and fertilizer are added in adequate amounts.

The soils of Bamberg County are generally acid and, therefore, require lime in amounts indicated by soil tests. The local county agent of the Extension Service will make recommendations that are based on the results of these tests, the use to be made of the soil, and the yields to be expected. The pH ranges that are best for crops commonly grown in the county are given in the Agronomy Handbook for South Carolina prepared by the Extension Agronomy Division, Clemson Agricultural College, Clemson, S.C.

Supplying organic matter and nitrogen.—Most of the soils in Bamberg County are deficient in organic matter and nitrogen. If nitrogen is added to crops other than legumes, it increases the yields and the organic matter that can be returned to the soil. Additional organic matter improves tilth and the available moisture capacity, and helps to reduce erosion.

Nitrogen is supplied to the soil in a different way than are phosphate, potash, and other soil minerals. Most nitrogen is obtained from plant remains, especially those of legumes, and from animal manure or commercial fertilizer. The amount of nitrogen added depends largely on the kinds of crops grown.

At the time of seeding a small grain or another nonlegume, it is good practice to apply a fertilizer that contains nitrogen, phosphate, and potash. Later, additional nitrogen can be applied as a topdressing or sidedressing. The needs of legumes are generally met by applying, at seeding time, a fertilizer containing phosphate and potash.

Selecting a good cropping system.—A cropping system should be selected that supplies fresh organic matter to crops that need it most. If cover crops and crop residue, especially that from legumes, are plowed under, yields of the succeeding crops are increased. Good cropping systems help to control erosion, soil-borne diseases, and weeds. The additional organic matter gained through a good cropping system absorbs plant nutrients and releases them to crops over a long period. Without the organic material, fertilizer, especially nitrogen, leaches out if it is not quickly taken up by a growing crop.

The soils of the county are particularly well suited to warm-season plants. More cool-season perennials, however, could be grown so as to increase grazing and the amount of manure. In the current cropping systems, small grain or ryegrass is used largely for winter cover and green manure. Coastal bermudagrass, bahiagrass mixed with sericea lespedeza, and other summer perennials are beginning to be used in the cropping systems.

Controlling erosion.—Because many soils in Bamberg County have been damaged by sheet erosion and some are severely eroded and have shallow gullies, improved use and management are needed to help control erosion. The steeper areas generally should be kept in forest or pasture. The sloping areas can be protected if cropping systems are long enough and plants cover the soil most of the time. One of the best ways to lessen erosion is to manage the soil well and to raise fertility to a high level. An increased number of plants increases organic matter and thus improves soil structure. The soils in the northwestern part of the county are susceptible to water and wind erosion and need to be protected by contour stripcropping, contour tillage, terracing, and sodding drainageways.

Artificial drainage.—Many wet areas in the county need to be studied to determine if drainage is practical. If their drainage is improved, most somewhat poorly drained and poorly drained soils provide good grazing and good crop yields. Wet soils that cannot be drained by tile are not so good for crops as are soils that are permeable to water and roots. The wet soils are cold and waterlogged in wet periods; they bake and are hard in dry periods. In wet areas, it is best to plant crops that are tolerant of wetness.

In the eastern and southern parts of the county, the soils vary in their degree of wetness and in the drainage needed for the economical production of crops and pasture.

Tillage.—Soils must be in good tilth if they are to produce maximum yields, but tillage often breaks down the structure of a soil. Adding organic matter and growing sod-forming crops help to restore soil structure. Tillage implements are helpful in maintaining good tilth if they mix a large amount of organic matter into the surface layer, but overcultivation should be avoided. Mulch tillage is an excellent practice, for it reduces the amount of tillage needed. Some soils in the county puddle unless they are cultivated within only a narrow range of moisture content. Soils that have a naturally sandy surface layer are much easier to maintain and improve in tilth than those that have a subsoil exposed by erosion. Tilling sloping soils on the contour helps to maintain good tilth by reducing runoff and erosion. Stripcropping the larger fields helps to protect the soils from wind erosion.

Capability groups of soils

The capability classification is a grouping of soils that shows, in a general way, how suitable soils are for most kinds of farming. It is a practical grouping based on limitations of the soils, on the risk of damage when they are used, and on the way they respond to management.

In this system all the kinds of soil are grouped at three levels, the capability class, subclass, and unit. Eight capability classes are in the broadest grouping and are designated by Roman numerals I through VIII. In class I are the soils that have few limitations, the widest range of use, and the least risk of damage when they are used. The soils in the other seven classes have progressively greater natural limitations. In class VIII are soils and landforms so rough, shallow, or otherwise limited that, without major reclamation, they do not produce worthwhile yields of crops, forage, or wood products. No soils in Bamberg County are in class VIII.

The subclasses indicate major kinds of limitations within the classes. Within most of the classes there can be as many as four subclasses. The subclass is indicated

by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is a risk of erosion unless a close-growing plant cover is maintained; *w* means that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the country, indicates that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few or no limitations. Class V can contain, at the most, only subclasses *w*, *s*, and *c* because the soils in it have little or no susceptibility to erosion but have other limitations that limit their use largely to pasture, range, woodland, or wildlife.

Within the subclasses are the capability units, which are groups of soils enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally identified by numbers assigned locally, for example, IIe–1 or IIIe–2. The soils in each capability unit have about the same limitations and require about the same treatment.

Soils are classified in capability classes, subclasses, and units in accordance with the degree and kind of their permanent limitations; but without consideration of major and generally expensive landforming that would change the slope, depth, or other characteristics of the soil; and without consideration of possible but unlikely major reclamation projects.

The eight classes in the capability system, and the subclasses and units in this county, are described in the list that follows.

Class I. Soils that have few limitations that restrict their use.

- Capability unit I–1.—Deep, well-drained, nearly level soils that have a sandy surface layer 14 to 18 inches thick and a friable subsoil.
- Capability unit I–2.—Deep, well-drained, nearly level soils that have a surface layer 6 to 12 inches thick and a subsoil of slightly sticky, friable sandy clay to clay loam.

Class II. Soils that have some limitations that reduce the choice of plants or require moderate conservation practices.

Subclass IIe. Soils that are subject to moderate erosion unless they are protected.

- Capability unit IIe–1.—Deep, well-drained, gently sloping soils that are slightly to moderately eroded and have a friable subsoil.
- Capability unit IIe–2.—Deep, well-drained, gently sloping soils that are slightly to moderately eroded and have a slightly sticky, friable fine sandy clay to clay loam subsoil.
- Capability unit IIe–3.—Moderately deep, well-drained, gently sloping soils that are slightly to moderately eroded and have a firm, slightly plastic subsoil.
- Capability unit IIe–4.—Moderately deep, well-drained soils that are slightly eroded and have a surface layer 10 to 18 inches thick and a firm, compact subsoil.

Subclass IIw. Soils that have moderate limitations because of excess water.

- Capability unit IIw–1.—Deep, nearly level, slightly wet local alluvium in draws and depressions.
- Capability unit IIw–2.—Deep, moderately well drained or somewhat poorly drained, nearly level soils that have a friable subsoil.

Subclass IIs. Soils that have moderate limitations of moisture capacity or tilth.

- Capability unit IIs–1.—Nearly level to gently sloping soils that have a rapidly permeable surface layer 18 to 30 inches thick and a friable subsoil.

Class III. Soils that have severe limitations that reduce the choice of plants, or require special conservation practices, or both.

Subclass IIIe. Soils that are subject to severe erosion if they are cultivated and are not protected.

- Capability unit IIIe–1.—Deep, sloping soils that are slightly to moderately eroded and have a friable subsoil.
- Capability unit IIIe–2.—Deep, sloping soils that are moderately eroded and have a sticky, friable sandy clay or fine sandy clay subsoil.
- Capability unit IIIe–3.—Moderately deep, well-drained, sloping soils that are moderately eroded and have a firm, slightly plastic, slowly permeable subsoil.
- Capability unit IIIe–4.—Moderately deep or deep, sloping soils that are susceptible to moderate or severe erosion and have a rapidly permeable surface layer 19 to 30 inches thick over a firm, compact or slightly cemented, slowly permeable subsoil.
- Capability unit IIIe–5.—Deep, slightly droughty, sloping soils that have a rapidly permeable, sandy surface layer 18 to 30 inches thick and a moderately to moderately rapidly permeable, friable subsoil.

Subclass IIIw. Soils that are severely limited because of excess water.

- Capability unit IIIw–1.—Deep, moderately well drained or somewhat poorly drained soils that have a loamy sand or sand subsoil.
- Capability unit IIIw–2.—Very poorly drained or poorly drained, deep, nearly level soils that have a firm, slowly permeable sandy clay subsoil.
- Capability unit IIIw–3.—Moderately deep, nearly level, somewhat poorly drained or moderately well drained soils on terraces that are ponded.
- Capability unit IIIw–4.—Nearly level, very poorly drained soils that have a black surface layer that is rich in organic matter and a subsoil of sandy loam to sandy clay.

Subclass IIIs. Soils that have severe limitations of moisture capacity or tilth.

- Capability unit IIIs–1.—Deep, nearly level to gently sloping, excessively drained sands or

loamy sands that have a surface layer 30 to 42 inches thick.

Class IV. Soils that have very severe limitations that restrict the choice of plants, require very careful management, or both.

Subclass IVe. Soils subject to very severe erosion if they are cultivated and are not protected.

Capability unit IVe–4.—Shallow to moderately deep, sloping, moderately eroded soils that have a firm, compact or slightly cemented subsoil.

Subclass IVw. Soils that have very severe limitations to cultivation because of excess water.

Capability unit IVw–2.—Poorly drained soils of the stream terraces that are ponded.

Capability unit IVw–3.—Poorly drained soils that have a sandy loam to sandy clay loam subsoil and a high water table.

Capability unit IVw–4.—For the most part, poorly drained mixed alluvial soils that vary in texture, have a high water table, and are flooded frequently.

Subclass IVs. Soils that have very severe limitations of low available moisture capacity or other soil features.

Capability unit IVs–1.—Deep, coarse-textured, excessively drained, gently sloping and sloping soils.

Class V. Soils not likely to erode that have other limitations, impractical to remove without major reclamation, that limit their use largely to pasture or range, woodland, or wildlife food and cover.

Subclass Vw. Soils that are too wet for cultivation and cannot be feasibly drained or protected.

Capability unit Vw–2.—Poorly drained, coarse-textured, unproductive soils.

Class VI. Soils that have severe limitations that make them generally unsuitable for cultivation and that limit their use largely to pasture or range, woodland, or wildlife food and cover.

Subclass VIe. Soils severely limited, chiefly by risk of erosion if protective cover is not maintained.

Capability unit VIe–2.—Moderately steep or steep, generally shallow, eroded soils that have a firm, compact or slightly cemented subsoil.

Subclass VIw. Soils severely limited by excess water and a thin surface soil.

Capability unit VIw–1.—Poorly drained soils that have a thin surface soil and a firm subsoil.

Subclass VIs. Soils generally unsuitable for cultivation and limited for other uses by their low available moisture capacity.

Capability unit VIs–1.—Deep, strongly sloping, and coarse-textured soils that are excessively drained, droughty, and unproductive.

Class VII. Soils that have very severe limitations that make them unsuitable for cultivation without major reclamation, and that restrict their use largely to grazing, woodland, or wildlife.

Subclass VIIw. Soils very severely limited by excess water.

Capability unit VIIw 1.—Swamps along the flood plains of streams.

Class VIII. Soils and landforms that have limitations that preclude their use, without major reclamation, for commercial production of plants; and restrict their use to recreation, wildlife, water supply, or esthetic purposes. (None in Bamberg County)

Capability units in Bamberg County

In this subsection each capability unit is described, and the soils in it are listed. Suggestions are given on how to use and manage the soils in each unit. As stated in the explanation of capability grouping, a capability unit consists of soils that are suited to the same crops, require similar management, and produce about the same yields.

CAPABILITY UNIT I–1

This capability unit consists of deep, well-drained, friable soils on the nearly level parts of the uplands. The surface layer is loose loamy sand, generally 14 to 16 inches thick but as much as 18 inches in some places. The subsoil is a friable sandy clay loam in most places but ranges from sandy clay loam to sandy loam. The soils in this unit are—

Kalmia loamy sand.
Norfolk loamy fine sand, 0 to 2 percent slopes.
Norfolk loamy sand, 0 to 2 percent slopes.
Orangeburg loamy sand, 0 to 2 percent slopes.
Ruston loamy sand, 0 to 2 percent slopes.

These soils have moderately rapid infiltration and moderate permeability. The available moisture capacity is medium but is sufficient for most crops. Runoff is slight, and there is no erosion hazard. These soils contain little organic matter, are medium to high in fertility, and are medium acid to strongly acid.

These soils occupy about 7.0 percent of the county, and are important to its agriculture. Nearly all of the acreage is cultivated; only a small part is in pasture or woods. The soils are suited to many kinds of crops but are used chiefly for cotton, corn, small grain, and soybeans. Bahiagrass and Coastal bermudagrass are among the grasses better suited for hay and pasture, and sericea lespedeza is one of the better suited legumes.

These soils have a thick root zone, are easy to till, and can be worked within a wide range of moisture content. They respond well to fertilizer and are favorable for modern farm machinery because they are friable and nearly level. Winds early in spring cause considerable soil blowing where the soils are exposed, dry, and freshly plowed.

Water erosion is not a hazard on these nearly level soils, because there is little runoff. Row crops can be grown every year, and fertility maintained, if large amounts of commercial fertilizer are applied. The fertilizer also increases yields and the amount of crop residue. Organic matter can be increased and good tilth maintained by leaving crop residue at the surface. Legumes and some other crops respond to additions of lime.

CAPABILITY UNIT I–2

This capability unit consists only of Marlboro loamy sand, 0 to 2 percent slopes. This soil is on uplands and is nearly level, deep, well drained, and friable. It generally has a loamy sand surface layer that is 6 to 12 inches thick and a fine-textured, slightly sticky subsoil that ranges from sandy clay to clay loam.

Infiltration and permeability are moderate. The available moisture capacity is medium but is ample for crops.

Fertility is generally high, and organic-matter content and acidity are medium. Plant nutrients are retained well in this soil.

This soil is important agriculturally but amounts to less than 1 percent of the county. Practically all of the acreage is cultivated intensively. The soil is productive and is suited to many kinds of crops, but it is used chiefly for cotton, soybeans, corn, and small grain. It is well suited to Coastal bermudagrass and bahiagrass, but only a small acreage is pastured.

This soil has a thick root zone and is generally in good tilth, but its fine-textured, sticky subsoil prohibits working soon after rains. The nearly level slopes favor the use of farm machinery. Because runoff is slow, erosion is not a hazard.

If large amounts of fertilizer are applied, row crops can be grown every year and fertility maintained. The fertilizer also increases yields and crop residue. Organic matter can be increased and good tilth maintained if crop residue is left at the surface and cover crops are turned under. Liming in amounts indicated by field tests is needed if legumes or other crops with a high lime requirement are grown.

CAPABILITY UNIT IIe-1

This capability unit consists of well-drained, friable soils on the gently sloping parts of the uplands. The surface layer of loose loamy sand is commonly more than 8 inches thick, but it ranges from 4 to 13 inches in thickness, depending on the amount of erosion. The subsoil, in most places, is friable sandy clay loam, but it ranges from sandy clay loam to sandy loam. The soils in this unit are—

Norfolk loamy fine sand, 2 to 6 percent slopes.
Norfolk loamy sand, 2 to 6 percent slopes.
Norfolk loamy sand, 2 to 6 percent slopes, eroded.
Orangeburg loamy sand, 2 to 6 percent slopes.
Orangeburg loamy sand, 2 to 6 percent slopes, eroded.
Ruston loamy sand, 2 to 6 percent slopes.
Ruston loamy sand, 2 to 6 percent slopes, eroded.

These soils have moderately rapid infiltration and moderate permeability. The available moisture capacity is medium but is sufficient for most crops. Runoff causes a slight or moderate hazard of erosion. These soils contain little organic matter, are medium to high in fertility, and are medium acid to strongly acid.

This capability unit occupies about 4.8 percent of the county and is important agriculturally. Nearly all of the acreage is cultivated, but a small part is pastured or wooded. These soils are suited to many kinds of crops but are used chiefly for cotton, corn, small grain, and soybeans. Bahiagrass and Coastal bermudagrass are among the grasses better suited for hay and pasture, and sericea lespedeza is one of the better suited legumes.

These soils have a thick root zone, are easy to till, and can be worked within a wide range of moisture content. They are favorable for the use of modern farm machinery because they are friable and have gentle, smooth slopes. Winds early in spring cause considerable soil blowing where the soils are exposed, dry, and freshly plowed.

Water erosion, though not severe, is a hazard in cultivated areas. Effective practices for controlling erosion are tilling on the contour and maintaining waterways in growing plants. Because these soils are mostly in large areas with long, gentle, smooth slopes, they generally are well suited to parallel terracing and stripcropping.

The use of close-growing crops for 2 years out of every 4 also helps to control erosion on these soils. In a suitable cropping system a small grain, lespedeza, or another close-growing crop is grown for 1 or 2 years and is followed by 1 or 2 years of a row crop. Adding large amounts of fertilizer produces much crop residue. Turning under crop residue and cover crops increases organic matter and thereby helps to prevent erosion and to maintain good tilth. Sericea lespedeza, annual lespedeza, and other crops respond to additions of lime.

CAPABILITY UNIT IIe-2

This capability unit consists of deep, well-drained, friable soils that are slightly to moderately eroded and lie on gently sloping uplands. These soils generally have a loamy sand surface layer 6 to 12 inches thick. Their fine-textured, slightly sticky subsoil ranges from fine sandy clay to clay loam. The soils in this unit are—

Faceville loamy sand, 2 to 6 percent slopes.
Faceville loamy sand, 2 to 6 percent slopes, eroded.
Magnolia loamy sand, 2 to 6 percent slopes.
Magnolia loamy sand, 2 to 6 percent slopes, eroded.
Marlboro loamy sand, 2 to 6 percent slopes.
Marlboro loamy sand, 2 to 6 percent slopes, eroded.

Infiltration and permeability are moderate in these soils. The available moisture capacity is medium but is ample for crops. The soils are generally high in fertility, contain a medium amount of organic matter, and are medium acid. Plant nutrients are retained well. Surface runoff is medium, and the erosion hazard is slight or moderate.

These soils occupy about 4.0 percent of the county and are important to its agriculture. Nearly all the acreage is cultivated; only a small part is in pasture or woods. The principal crops are cotton, soybeans, small grain, and corn, but many other crops are suited. Bahiagrass and Coastal bermudagrass are among the grasses better suited to hay and pasture.

These soils have a thick root zone and are generally in good tilth. They can be worked within a fairly wide range of moisture content but not too soon after rains. They are suitable for the use of modern farm machinery because they are gently sloping, smooth, and friable.

Erosion, though moderate, is a hazard in cultivated fields, but it can be controlled by tilling on the contour and keeping waterways in growing plants. Parallel terracing and stripcropping (fig. 10) are also suitable because the soils are mostly in large areas on long, smooth, gentle slopes. All of these practices help to prevent soil blowing, as well as water erosion.

Keeping the soils in close-growing crops at least half of the time helps to prevent erosion and to increase yields and the amount of crop residue. If the residue is turned under, the amount of organic matter is increased and tilth is maintained. Legumes respond to liming. In one suitable cropping system, a small grain and soybeans are grown for 1 year and are followed by a row crop. In another suitable system the soils are kept in grass for 2 years, and then row crops are grown for 2 years.

CAPABILITY UNIT IIe-3

This capability unit consists of moderately deep, well-drained, yellowish-red soils on gently sloping uplands. The surface layer is grayish-brown, loose loamy sand, generally 6 to 12 inches thick, and the subsoil is red to yel-

Figure 10.—**Stripcropping on Marlboro and Faceville soils. Capability unit IIe–2.**

lowish-red, firm sandy clay or clay. The soils in this unit are—

Caroline loamy sand, 2 to 6 percent slopes.
Caroline loamy sand, 2 to 6 percent slopes, eroded.

These soils have moderate infiltration in the loamy sand surface layer and slow permeability in the subsoil. Runoff is medium on the gentle slopes, and the erosion hazard in cultivated fields is moderate. Fertility and the available moisture capacity are medium, and the organic-matter content is low to medium. Acidity is strong.

These soils account for less than 1 percent of the county and generally are not productive. About three-fourths of their acreage is cultivated or in pasture, and one-fourth is woodland. Cotton, corn, soybeans, and small grain are commonly grown. Bahiagrass, Coastal bermudagrass, and sericea lespedeza are suitable for hay or pasture. These soils generally are not well suited to corn and other crops that require a large amount of moisture in summer.

Tilling on the contour and keeping the waterways in growing plants are practices needed to control erosion, but they are somewhat difficult because slopes are uneven. A suitable cropping system that includes close-growing crops about half the time consists of a small grain grown for 2 years and followed by 2 years of soybeans or, preferably, lespedeza grown for 2 years and followed by 2 years of row crops. All crop residue should be turned under to increase organic matter and to return plant nutrients to the soil.

CAPABILITY UNIT IIe–4

Only Gilead loamy sand, 2 to 6 percent slopes, is in this capability unit. It is gently sloping and moderately deep. The surface layer is dark-gray to grayish-brown, loose loamy sand that ranges from 10 to 18 inches in thickness. The subsoil is generally firm and compact sandy clay to clay.

Water infiltrates rapidly into the coarse-textured surface layer. This layer has rapid permeability but somewhat low available moisture capacity. The slowly permeable subsoil restricts the movement of both air and water, and there is generally excess water on the surface

layer after rains. Surface runoff is medium, and the losses of soil and plant nutrients through erosion are slight to moderate. At times this soil is slightly droughty and does not contain enough moisture for shallow-rooted crops.

This capability unit makes up only about 0.1 percent of the county. Less than half the acreage is cultivated or is in pasture, and almost half is woodland. Cotton, soybeans, and oats are the best suited crops. Suitable for hay and pasture are bahiagrass, Coastal bermudagrass, sericea lespedeza, and crimson clover.

This soil has a moderately thick root zone and is easy to till, but it cannot be worked soon after heavy rains. Although water erosion is a hazard, it can be controlled by contour tillage and waterways kept in growing plants.

Keeping this soil in close-growing crops at least half of the time helps to control erosion and to supply organic matter. In a suitable cropping system sericea lespedeza or bahiagrass is grown for 2 years and is followed by 2 years of row crops; or oats and soybeans are grown for 1 year and are followed by 1 year of a row crop.

Fairly large additions of fertilizer increase yields and, consequently, the amount of crop residue that can be turned under to increase organic matter and reduce erosion. Liming in amounts indicated by soil tests benefits legumes and other crops.

CAPABILITY UNIT IIw-1

Only Local alluvial land is in this capability unit. This land is nearly level and occupies slight depressions and draws. It is moderately well drained in most places but ranges from well drained to somewhat poorly drained. It has a moderately thick or thick root zone that varies in thickness according to the kind of underlying material and the depth to the water table. The texture varies but generally is loamy sand in the surface layer and sandy loam to sandy clay loam in the subsoil.

This land has moderate infiltration and permeability. Runoff is slow, especially where no drainage has been installed, and the available moisture capacity is medium to high. The content of plant nutrients is generally high, and the content of organic matter is medium to high. Acidity is strong.

Although this land accounts for less than 1 percent of the county, it is productive and agriculturally important. Individual areas generally range from 1 to 5 acres in size. Excess water limits the use of this land to some extent, but it can be drained by ditching and tiling. In many places small areas are ditched or sodded to serve as outlets for the surrounding soils.

Most of the acreage in this capability unit is used for cultivated crops, but many areas are suitable also for pasture or hay crops. If cultivated crops are grown, drainage is needed. Truck crops, corn, small grain, and soybeans are suitable crops, but cotton and tobacco are not. Coastal bermudagrass, bahiagrass, white clover, and annual lespedeza are the best plants for hay or pasture.

A suitable cropping system consists of oats and soybeans grown for 1 year and followed by 2 years of row crops. All plant residue should be plowed under. Lime and fertilizer should be added in amounts indicated by soil tests and the needs of the crops grown.

CAPABILITY UNIT IIw-2

This capability unit consists of deep, nearly level soils that are moderately well drained or somewhat poorly drained. These soils generally have a gray to very dark gray loamy sand or sandy loam surface layer and a friable sandy loam or sandy clay loam subsoil. The soils in this unit are—

Dunbar fine sandy loam.
Dunbar sandy loam.
Goldsboro loamy sand.
Goldsboro loamy sand, thick surface.
Izagora sandy loam, sandy substratum.
Lynchburg loamy fine sand.
Lynchburg loamy sand.

The Lynchburg and Dunbar soils are somewhat poorly drained, and the rest are moderately well drained. All of the soils have moderate to moderately slow infiltration and permeability. They have medium available moisture capacity. Because the water table is near the surface, they can supply ample moisture for crops. Runoff is slow, and water may stand in places for long periods unless drainage is established. These soils generally are high in fertility and contain a medium amount of organic matter. They are strongly acid.

These soils occupy about 12.4 percent of the county and, except for the Lynchburg and Izagora soils, are almost entirely cultivated. About 65 percent of the acreage in Lynchburg and Izagora soils is in woods. All of these soils are well suited and commonly planted to cotton, corn, small grain, soybeans, and truck crops. Among the best suited plants for hay or pasture are dallisgrass, bahiagrass, white clover, and annual lespedeza. In drained areas the soils in this unit are among the most productive in the county (fig. 11). Less drainage is required on the Goldsboro soils than on the Izagora, Lynchburg, and Dunbar soils. Generally, the drainage of the Goldsboro soils is improved by draining the adjacent soils. Additional drainage is needed only in small low areas.

Crops on these soils respond to heavy applications of fertilizer, which increase yields and the amount of crop residue. If this residue and cover crops are plowed under, organic matter is increased and tilth is improved.

Row crops can be grown on these soils every year if enough fertilizer is added and the other management is good. Nevertheless it is better to use a cropping system

Figure 11.—**Open ditch draining soils in capability unit IIw-2.**

that provides close cover for half of the time. Such a cropping system is 1 year of a small grain and lespedeza followed by 1 year of a row crop; or 1 or 2 years of a small grain and soybeans followed by 1 or 2 years of a row crop. All crop residue should be turned under. Additions of lime are needed in amounts indicated by soil tests and the requirement of the crop grown.

CAPABILITY UNIT IIs–1

This capability unit consists of deep, well-drained, nearly level to gently sloping soils on uplands. The surface layer is thick, loose, gray to grayish-brown loamy sand that generally is about 24 inches thick but ranges from 18 to 30 inches in thickness. The subsoil is yellowish-brown and yellowish-red, friable sandy loam or sandy clay loam. The soils in this unit are –

Norfolk loamy fine sand, thick surface, 0 to 2 percent slopes.
Norfolk loamy fine sand, thick surface, 2 to 6 percent slopes.
Norfolk sand, thick surface, 0 to 2 percent slopes.
Norfolk sand, thick surface, 2 to 6 percent slopes.
Ruston loamy sand, thick surface, 0 to 2 percent slopes.
Ruston loamy sand, thick surface, 2 to 6 percent slopes.

These soils have rapid infiltration and permeability in the surface layer and moderate to moderately rapid permeability in the subsoil. The available moisture capacity is medium, but the loamy sand surface layer holds less moisture than the subsoil and, in dry seasons, is slightly droughty, especially for shallow-rooted plants or newly established seedlings. The organic-matter content is medium to low, natural fertility is low, and acidity is medium.

The soils of this capability unit amount to about 11.6 percent of the acreage in the county. About 85 percent of the acreage is in cultivated crops; the rest is in woods and pasture. Cotton, small grain, soybeans, and corn are the main crops, but watermelons, cantaloups, peanuts, and truck crops are also suited. Pecan and peach orchards are well suited. Crimson clover, annual lespedeza, and sericea lespedeza are legumes suitable for cover crops and for hay and pasture, and bahiagrass and Coastal bermudagrass are suitable grasses. Bicolor lespedeza is well suited for permanent patches of wildlife food.

These soils have a thick, loose root zone, are easily cultivated, and can be worked within a wide range of moisture content. Their gentle, smooth slopes and looseness favor mechanized farming. Winds early in spring, however, cause considerable soil blowing where these soils are exposed, dry, and freshly plowed.

Water erosion is only a slight hazard, but rills form if runoff concentrates in bare areas. Cultivating on the contour and maintaining vegetated outlets help in controlling water erosion. Some soils have been damaged by soil blowing (fig. 12), but if these soils are stripcropped, soil blowing and its damage to young plants are reduced. Heavy fertilization increases yields and the amount of crop residue that can be turned under. By turning under the residue, as well as cover crops, organic matter and the available moisture capacity of the surface layer are increased and good tilth is maintained.

Sericea lespedeza, annual lespedeza, and other crops that respond to liming should be limed in amounts indicated by soil tests. In one suitable cropping system a small grain and soybeans are grown for 1 year and are followed by 1 year of a row crop. In another suitable system bahiagrass is grown alone or with sericea lespedeza for 2 or 3 years and is followed by 2 or 3 years of row crops. Crimson clover can be seeded with the bahiagrass or bermudagrass after the grass is well established.

760–135—65——4

Figure 12.—**Norfolk sand, thick surface, damaged by soil blowing.**

CAPABILITY UNIT IIIe–1

This capability unit consists of well-drained soils on the sloping parts of uplands. The surface layer of loose loamy sand generally is 8 inches thick, but it varies according to the amount of erosion and ranges from 4 to 18 inches in thickness.

A few galled spots occur where the yellowish-red subsoil is exposed. The subsoil is friable, yellowish-brown or yellowish-red sandy loam to sandy clay loam. The soils in this unit are—

Norfolk loamy sand, 6 to 10 percent slopes, eroded.
Orangeburg loamy sand, 6 to 10 percent slopes, eroded.
Ruston loamy sand, 6 to 10 percent slopes.
Ruston loamy sand, 6 to 10 percent slopes, eroded.

These soils have moderate infiltration and permeability. The available moisture capacity is medium but is sufficient for most crops. Runoff causes a moderate erosion hazard. These soils are fairly low in organic-matter content, medium in fertility, and medium to strongly acid.

This capability unit occupies about 1 percent of the county. All crops common in the county are grown, but yields are not so high as on similar soils that are gently sloping instead of strongly sloping. Bahiagrass and Coastal bermudagrass are well suited to hay and pasture, and sericea lespedeza is a well-suited legume.

These soils can be worked within a wide range of moisture content. Unless they are excessively wet, they can be grazed without damage from trampling. A cropping system of close-growing crops for 2 years and a row crop for 1 year builds up organic matter, improves tilth, and controls erosion. Also needed for erosion control are contour cultivation and terracing with vegetated waterways. Lime should be added in amounts indicated by soil tests and the needs of the crops grown.

CAPABILITY UNIT IIIe–2

This capability unit consists of deep, well-drained soils on sloping uplands. These soils have a grayish-brown or reddish-brown loamy sand surface layer that ranges from

3 to 9 inches in thickness. Their subsoil is red to yellowish red and yellowish brown, friable, and fine textured. It is sticky when moist. These soils are mainly moderately eroded, but in a few severely eroded places the subsoil is exposed. The soils in this unit are—

Faceville loamy sand, 6 to 10 percent slopes, eroded.
Magnolia loamy sand, 6 to 10 percent slopes, eroded.
Marlboro loamy sand, 6 to 10 percent slopes, eroded.

These soils have moderate infiltration and permeability and medium available moisture capacity. In most places natural fertility is medium to high and the organic-matter content is medium, but in the eroded places where the subsoil is exposed, fertility and the organic-matter content are low. These soils are medium acid. The erosion hazard is severe.

These soils amount to about 0.4 percent of the county. About two-thirds of the acreage is in cultivated crops, and the rest is wooded, pastured, or idle. Cotton, soybeans, and small grain are the main crops, and some corn is grown, but many other crops are also suited. Bermudagrass and bahiagrass are suitable for pasture and hay, as is the legume sericea lespedeza.

If row crops are grown, close-growing crops are needed on this soil about two-thirds of the time to help control erosion. A suitable cropping system is 2 years of a small grain and lespedeza followed by 1 year of a row crop; or 3 or more years of bahiagrass and sericea lespedeza followed by 2 years of row crops. Also needed to control erosion are contour cultivation and terraces with vegetated waterways.

Except in areas that have a thin surface layer or an exposed subsoil, these soils are in reasonably good tilth and can be worked within a wide range of moisture content. Because slopes are rough, using machinery to establish and maintain contours is difficult. Many small areas should be kept in hay, pasture, or other perennials. The amount of lime needed depends on the crop grown and is indicated by soil tests.

CAPABILITY UNIT IIIe-3

Caroline loamy sand, 6 to 10 percent slopes, eroded, is the only soil in this capability unit. It is a moderately deep, well-drained soil on sloping uplands. The surface layer is gray to grayish-brown, loose loamy sand 3 to 12 inches thick. The subsoil is firm, red to yellowish-red sandy clay.

This soil has moderate infiltration in the surface layer and slow permeability in the subsoil. Because of these qualities, and the strong slopes, surface runoff is rapid and the erosion hazard severe in cultivated fields. The available moisture capacity is medium, and acidity is strong. Fertility and the organic-matter content generally are low, especially in the more eroded areas.

This soil makes up less than 1 percent of the county. Most of it is in woods or pasture, but a small part is in row crops. The soil is well suited to trees, especially loblolly and slash pines. If a large amount of fertilizer is added, bahiagrass, bermudagrass, and annual and sericea lespedezas are suitable for pasture and hay. Cotton, oats, soybeans, and grain sorghum are grown, but this soil is not well suited to them. Cropped areas should be terraced, and vegetated outlets should be established before the crops are planted. In many places slopes are rough, and terracing or contour cultivation is difficult.

A suitable cropping system is 2 years of a small grain and annual lespedeza followed by 1 year of a row crop; or 3 or more years of bahiagrass or sericea lespedeza followed by 2 years of row crops. Even if this soil is fertilized heavily, it produces lower yields than similar soils that have a more friable and more permeable subsoil. Lime should be added in amounts indicated by soil tests and the requirement of the crop grown.

CAPABILITY UNIT IIIe-4

Only Vaucluse sand, thick surface, 6 to 10 percent slopes, is in this capability unit. It is sloping and moderately deep or deep. The surface layer, a gray to grayish-brown loose sand, is 19 to 30 inches thick over firm, compact or slightly cemented sandy clay to clay.

Water infiltrates rapidly into the coarse-textured surface layer. This layer has rapid permeability but low available moisture capacity. At times there is not enough moisture for shallow-rooted crops. Because the subsoil is slowly permeable, the movement of both water and air is restricted. Surface runoff is medium. As a result of these qualities, there is generally excess water in the surface layer. This water increases the susceptibility to erosion and the loss of plant nutrients. The erosion hazard is moderate or severe. This soil is low in fertility, contains a small amount of organic matter, and is strongly acid.

This capability unit makes up less than 1 percent of the county. Little of this acreage has been cleared and planted to crops, pasture, or hay; most of it is woodland. This soil is fairly well suited to cotton, soybeans, oats, rye, ryegrass, and grain sorghum. It is suited to bahiagrass and bermudagrass grown for hay and pasture and to sericea lespedeza. Yields are lower on this soil than on more friable and more permeable soils that receive similar fertilization and other good management.

Controlling erosion is difficult on this soil. Required for erosion control are contour cultivation and terraces with stabilized outlets. In many places where slopes are uneven, strips of permanent plants are needed for protection. To reduce erosion and to build up organic matter, close-growing crops are needed 2 years out of every 3. A suitable cropping system consists of sericea lespedeza or bahiagrass grown for 4 years and followed by 2 years of row crops; or 2 years of oats and soybeans or annual lespedeza followed by 1 year of a row crop. Lime and fertilizer should be added in amounts indicated by soil tests and the requirements of the crop grown. Areas of this soil that are not needed for crops or pasture can be planted profitably to trees.

CAPABILITY UNIT IIIe-5

This capability unit consists of deep, well-drained, sloping soils on uplands. The surface layer is gray to grayish-brown, loose loamy sand that is generally 24 inches thick but ranges from 18 to 30 inches in thickness. The subsoil is yellowish-brown to yellowish-red, friable sandy loam and sandy clay loam. The soils in this unit are—

Norfolk sand, thick surface, 6 to 10 percent slopes.
Ruston loamy sand, thick surface, 6 to 10 percent slopes.

These soils have rapid infiltration and permeability in the surface layer and moderate to moderately rapid permeability in the subsoil. The subsoil is medium in available moisture capacity, but it holds more moisture than

the surface layer. Runoff is medium, and erosion is a moderate hazard in fields planted to row crops. The organic-matter content is medium to low, natural fertility is low, and acidity is medium.

The soils in this unit account for less than 1 percent of the county. Of this acreage about half is in woods and half is cropland. Only a small part is pastured. These soils are suited to cotton, corn, small grain, soybeans, watermelons, and sweetpotatoes. They are also suited to peach and pecan trees. Because the surface layer holds little moisture, shallow-rooted plants or newly established seedlings are likely to be affected by drought.

Keeping the soils in close-growing crops 2 years out of 3 reduces the erosion hazard. If organic matter is mixed into the surface layer, more moisture is retained and the drought hazard is reduced. Additional protection is provided by farming on the contour, terracing, and keeping the waterways in growing plants.

A cropping system suited to these soils consists of a small grain and soybeans grown for 2 years and followed by 1 year of a row crop; or 3 years of sericea lespedeza or bahiagrass followed by 2 years of row crops. Liberal fertilization increases yields, as well as the amount of crop residue that can be turned under to increase organic matter. Crimson clover, bahiagrass, and Coastal bermudagrass are suitable plants for hay or pasture. Sericea lespedeza is a good perennial legume. Lime should be added in amounts indicated by soil tests and according to the needs of the crop grown.

CAPABILITY UNIT IIIw–1

The soils of this capability unit are nearly level, deep, and moderately well drained or somewhat poorly drained. They are in sandy areas on uplands and stream terraces that have a moderately high water table. Their loamy sand surface layer ranges from very dark gray to dark grayish brown in color and is underlain by light yellowish-brown loamy sand or sand that is mottled with gray and ranges from 30 to 42 inches in thickness. The soils in this unit are—

Klej loamy sand.
Klej loamy sand, terrace.

These soils have moderate infiltration and permeability. They are medium in content of organic matter and have a low supply of plant nutrients. The available moisture capacity is low, and the soils are acid.

These soils amount to about 1.3 percent of the county. Most of this acreage is in trees, but about 20 percent is cropland, and a small part is pasture. Drained areas are fairly well suited to truck crops, corn, soybeans, oats, and cowpeas. They are also fairly well suited to hay and pasture of bermudagrass, dallisgrass, bahiagrass, white clover, or annual lespedeza.

Row crops can be grown on these soils each year if large amounts of crop residue are turned under. A suitable cropping system is 3 or more years of bahiagrass followed by 2 or 3 years of row crops. Truck crops can be grown each year if followed by blue lupine or cowpeas. Another suitable cropping system is 1 year of oats and cowpeas or annual lespedeza, 1 year of corn and blue lupine, and 1 year of a row crop. If all crops are well fertilized and all crop residue is plowed under, both yields and organic matter are increased.

Excess water should be removed by open ditches, tile drains, or both. The ditches are hard to maintain because the subsoil is sandy and the sides of the ditches cave. In droughty periods sprinkler irrigation can be used, particularly on truck crops. Dug ponds generally provide ample water for irrigation, but the side slopes must be broadened to prevent them from caving. Lime is required for most crops, particularly clover.

CAPABILITY UNIT IIIw–2

The soils in this capability unit are nearly level, deep, and very poorly drained or poorly drained. They occupy depressions on uplands and have a high water table. The surface layer ranges from black to dark gray in color, from sandy loam to loam in texture, and from 5 to 9 inches in thickness. The subsoil generally is gray, firm sandy clay but is clay in some places. It is mottled with yellowish brown and red in the lower part. The soils in this unit are—

Bayboro loam.
Coxville fine sandy loam.
Coxville sandy loam.
Grady loam.
McColl sandy loam.
McColl loam.

These soils have slow infiltration and permeability and a medium available moisture capacity. Fertility is medium, and the organic-matter content is medium to high.

These soils occupy almost 9.6 percent of the county. About 5 percent of their acreage is cropland, 12 percent is pasture, and the rest is woodland. Excess water from the high water table severely limits the use of these soils. Drainage is needed before the soils can be cultivated to row crops, pasture, or hay. In many places small areas can be drained with tile, but in large areas a combination of open ditches and tile is required.

Although cotton is not well suited to these soils, it is grown in a few small areas that are surrounded by better soils in cotton. Corn, small grain, soybeans, and grain sorghum are suited and are commonly grown. Dallisgrass, bahiagrass, and tall fescue are suitable for pasture or hay. Annual lespedeza, white clover, and crimson clover are suitable legumes.

Row crops can be grown on these soils every year if crop residue and cover crops are turned under to increase organic matter and to improve tilth. These soils cannot be worked or grazed within so wide a range of moisture content, nor so soon after rains, as many of the soils surrounding them. A suitable cropping system consists of 1 or 2 years of oats and annual lespedeza followed by 1 or 2 years of row crops; or 1 year of a small grain and soybeans followed by 1 year of a row crop. If all crops are well fertilized and all crop residue is plowed under, both yields and the organic-matter content are increased. Lime is required for most crops, especially legumes, and should be applied in amounts indicated by soil tests. These soils generally contain sites favorable for dug ponds.

CAPABILITY UNIT IIIw–3

Wahee sandy loam, sandy substratum, is the only soil in this capability unit. It is on terraces and is nearly level, moderately deep, and somewhat poorly drained or moderately well drained. It has a dark-gray surface

layer. Its upper subsoil is brownish-yellow or light yellowish-brown, firm clay that is mottled with red, strong brown, and gray. At a depth of 20 to 32 inches, the lower subsoil is gray mottled with strong brown. These soils are underlain by a thick layer of coarse sand at a depth of 28 to 42 inches.

The root zone of this soil is moderately thick. Infiltration and permeability are moderately slow to slow, and the available moisture capacity is moderate. The soil is slightly acid to strongly acid and medium in organic-matter content and natural fertility. Severe flooding occurs once every 15 to 25 years.

This soil occupies less than 1 percent of the county. Most of it has been cleared and cultivated, but now only about 20 percent is cultivated. Except for a small idle area, the rest has been planted to pines.

The soil in this unit is well suited to oats, common lespedeza, corn, and soybeans. It is fairly well suited to cotton, cowpeas, and vetch. Bermudagrass, dallisgrass, bahiagrass, common lespedeza, and white clover are the best plants to seed for forage crops. Lime and fertilizer are required for high yields of all crops. They should be applied in amounts indicated by the soil tests and the requirements of the crop grown. Lime is particularly required for clover.

Row crops can be grown on this nearly level soil every year if crop residue and cover crops are turned under so that organic matter is increased and tilth is improved. This soil cannot be worked within so wide a range of moisture content, nor so soon after rains, as some of the surrounding soils in class I and subclass IIs. In a suitable cropping system, oats and common lespedeza are grown for 1 year and are followed by a row crop. Allowing the lespedeza to reseed improves the cropping system. Another suitable cropping system consists of 1 year of a small grain and soybeans followed by a row crop. If all crops are well fertilized and all crop residue is plowed under, both yields and organic matter are increased. In nearly level depressions (fig. 13) or in pocketlike areas, shallow drainage ditches are required to remove the excess surface water. The thick, coarse sand that underlies this soil can be used as structural material.

Figure 13.—**Because drainage is needed, this pasture cannot be grazed.**

CAPABILITY UNIT IIIw–4

This capability unit consists of nearly level, very poorly drained soils on uplands and stream terraces of the Coastal Plain. These soils have a thick, black sandy loam or loam surface layer that is rich in organic matter. The subsoil is gray, friable sandy loam to sandy clay. The root zone is thick or moderately thick. The soils in this unit are—

Okenee loam.
Portsmouth loam.
Portsmouth sandy loam.

Infiltration is moderate, and permeability is moderate or moderately slow. The available moisture capacity is medium in most places, but much water is available when the water table is near the surface. Natural fertility is medium to high, the organic-matter content is high, and acidity is very strong.

The soils in this unit occupy about 5.5 percent of the county. They are mostly wooded, but some areas have been cleared and are planted to corn or are used for pasture. Use is severely limited unless these very poorly drained soils are artificially drained. Drained areas are suited to corn, oats, soybeans, grain sorghum, and some truck crops and, for hay and pasture, to dallisgrass, bahiagrass, tall fescue, white clover, and annual lespedeza.

If these soils are used for crops or pasture, drainage by open ditches, tile, or both is needed. Small areas of the Portsmouth soils are drained along with adjoining soils and may not require additional drainage. The soils in this unit cannot be worked within so wide a range of moisture content as adjoining higher soils. They are injured by trampling if they are grazed when wet.

A suitable cropping system consists of 1 year of oats and annual lespedeza followed by 1 year of a row crop; or 3 or more years of grass and white clover followed by 3 years of row crops. Turning under all crop residue and cover crops helps to maintain the organic-matter content and to improve tilth. Heavy fertilization and liming are needed for most crops and pasture. The lime should be applied in amounts indicated by soil tests. Sprinkler irrigation is suited to these soils, especially if they are used for truck crops. Sites suitable for dug ponds occur in many places.

CAPABILITY UNIT IIIs–1

This capability unit consists of deep, excessively drained soils on nearly level to gently sloping uplands. These soils have a gray to brown, loose sand or loamy sand surface layer that extends to a depth of 30 to 42 inches. Their subsoil is loamy sand or sandy loam in most places but is sandy clay loam in some. The soils in this unit are—

Eustis loamy sand, 0 to 6 percent slopes.
Lakeland sand, moderately shallow, 0 to 2 percent slopes.
Lakeland sand, moderately shallow, 2 to 6 percent slopes.
Lakeland sand, moderately shallow, terrace, 0 to 4 percent slopes.

These soils have very rapid infiltration and permeability. Because their available moisture capacity is low to very low, the soils are droughty and are subject to leaching. They are low in fertility and organic-matter content and are strongly acid.

The soils of this capability unit are among the most extensive in the county and make up about 7.7 percent of the total acreage. About half of their acreage is woodland and pasture, and half is cropland. Although all

crops common in the county are grown on these soils, yields are low because available moisture is limited. Fairly well suited are cotton, oats, rye, watermelons, and early truck crops. Coastal bermudagrass and bahiagrass are among the grasses better suited for hay and pasture, and sericea lespedeza is a well-suited legume.

These soils require heavy fertilization to offset the severe leaching of plant nutrients. Organic matter added in frequent and large amounts helps the soils to absorb and retain moisture and to retain the nutrients. The best way to add organic matter is to plow under cover crops that are planted 2 years out of 3 and to plow under all crop residue. Adequate fertilization increases yields and the amount of organic matter that can be turned under.

A suitable cropping system is 2 years of oats and cowpeas followed by 1 year of a row crop. Another suitable cropping system consists of Coastal bermudagrass or sericea lespedeza for 3 or 4 years followed by 2 years of row crops. Cover crops, stubble mulch, and stripcropping at right angles to the prevailing winds greatly reduce soil blowing early in spring.

These soils can be worked within a wide range of moisture content and can be grazed in wet periods without damage from trampling. Generally, these soils are not suited to terracing, because they are loose and channels are quickly filled. They should be tilled on the contour and planted in strips of sericea lespedeza. Lime and fertilizer should be applied in amounts indicated by soil tests and the requirements of the crop grown.

CAPABILITY UNIT IVe–4

Only Vaucluse loamy sand, 6 to 10 percent slopes, eroded, is in this capability unit. This soil is shallow to moderately deep, is moderately eroded, and has a firm, compact or slightly cemented subsoil. The surface layer ranges from 3 to 18 inches in thickness, but it generally is 3 to 12 inches thick. A few gullies have formed, and in some places the reddish subsoil is exposed.

This soil has rapid runoff and slow infiltration. The subsoil is slowly permeable and is especially low in available moisture capacity. The soil is low in fertility, medium to low in organic-matter content, and strongly acid.

The soil in this capability unit occupies less than 1 percent of the county. Nearly all of its acreage is woodland, but a few areas are in crops or pasture. Generally, this soil is not suited to row crops, because it is susceptible to severe erosion. It is better suited to bermudagrass, bahiagrass, sericea lespedeza, or other perennials. Yields are low even if large amounts of fertilizer are added.

If this soil is needed for cultivated crops, it should be kept in sericea lespedeza for 3 or 4 years; then one-fourth of the soil can be planted each year to a row crop. Small areas can be kept in sericea lespedeza for 3 years and then planted to a row crop for 1 year. The best use of this soil is for pine trees, though their growth is only fair to poor.

CAPABILITY UNIT IVw–2

This capability unit consists of nearly level, moderately deep or deep, poorly drained soils that occur mostly on terraces of the Edisto River. These soils have a gray to black loamy sand or clay loam surface layer 3 to 6 inches thick. The subsoil is tough, compact sandy clay or clay that is gray mottled with yellow and brown. The soils in this unit are—

Leaf loamy sand, sandy substratum.
Leaf clay loam, thin surface.

These soils have slow to moderate infiltration and slow permeability. The available moisture capacity is medium. The water table frequently is at or near the surface. Natural fertility is low, acidity is strong, and the organic-matter content is medium to high.

These soils account for about 1.7 percent of the county and are mostly in pines or hardwoods. Because of their high water table, they generally are not well suited to crops, but small adequately drained areas are planted to row crops along with adjoining soils. Corn, soybeans, and grain sorghum can be grown in drained areas. Fertilizer and lime are needed in large amounts as indicated by soil tests. Drained areas are suited to dallisgrass and bahiagrass. White clover and annual lespedeza are fairly well suited legumes. Because these soils are best suited to trees, the native forest should not be cleared.

CAPABILITY UNIT IVw–3

This capability unit consists of poorly drained, nearly level soils on stream terraces and uplands. These soils have a dark-gray sandy loam and loamy sand surface layer, commonly 6 inches thick, and a gray sandy loam to sandy clay loam subsoil that is mottled with yellow to brown. The soils in this unit are—

Myatt loamy sand.
Rains loamy sand.

These soils have medium infiltration in the surface layer and moderately slow permeability in the subsoil. The available moisture capacity is medium. The water table frequently is at or near the surface. Natural fertility is low, acidity is medium or strong, and the organic-matter content ranges from high to low.

These soils amount to about 8.8 percent of the county. About three-fourths of their acreage is wooded, and the rest has been cleared. Because of the high water table, these soils generally are not well suited to crops, but small adequately drained areas can be planted to row crops along with adjoining soils. Corn, soybeans, and truck crops can be grown in drained areas. Large amounts of fertilizer are needed, and lime should be added in amounts indicated by soil tests and the requirement of the crop grown. Drained areas are suited to dallisgrass, bahiagrass, and bermudagrass. White clover and annual lespedeza are fairly well suited legumes. Because these soils are best suited to trees, the native forest should not be cleared.

CAPABILITY UNIT IVw–4

Only Mixed alluvial land is in this capability unit. It varies in texture and color and is generally poorly drained, but it ranges from somewhat poorly drained to very poorly drained. Flooding is frequent, and water stands at or near the surface most of the time. The organic-matter content is high, and acidity is strong.

This capability unit amounts to about 2.5 percent of the county. Most of the acreage is wooded, but a small part has been cleared for pasture. Use of the land is limited mainly by excess water. Drainage is difficult because removal of large amounts of water is necessary and ditchbanks are unstable. Some places can be drained enough

to be used for pasture, but grazing must be limited to dry periods. Dallisgrass and carpetgrass are suitable pasture plants. The stands of native hardwoods that remain can be improved through good management. In many places ponds can be made by impounding water.

CAPABILITY UNIT IVs-1

This capability unit consists of deep, excessively drained, gently sloping and sloping sands and loamy sands that extend from the surface to a depth ranging from 30 inches to as much as 10 feet. These soils have a grayish-brown or brown surface layer and a yellowish-brown or yellowish-red subsoil. The soils in this unit are—

Eustis loamy sand, 6 to 10 percent slopes.
Eustis sand, 0 to 6 percent slopes.
Eustis sand, 6 to 10 percent slopes.
Eustis sand, terrace, 0 to 6 percent slopes.
Lakeland sand, 0 to 6 percent slopes.
Lakeland sand, 6 to 10 percent slopes.
Lakeland sand, moderately shallow, 6 to 10 percent slopes.
Lakeland sand, terrace, 0 to 6 percent slopes.

These soils have very rapid infiltration and permeability and low to very low available moisture capacity. Consequently, they are droughty and readily leached of plant nutrients. They are low in natural fertility and organic-matter content and are strongly acid. Wind erosion is a moderate hazard in large, exposed fields, and water erosion is likely in the more sloping areas.

The soils in this capability unit occupy about 11.4 percent of the county. About 80 percent of their acreage is in woods, and the rest is in crops or is open. Broomsedge and other native plants grow in the open areas. Only a small acreage is in improved pasture.

Generally, these soils are not well suited to crops and pasture. Low yields of corn, cotton, grain sorghum, soybeans, watermelons, oats, and rye can be obtained. Bahiagrass and Coastal bermudagrass are suitable for hay or pasture, and sericea lespedeza is the best suited legume. The sericea lespedeza can be grown alone or with bermudagrass or bahiagrass. Yields of crops can be increased by adding large amounts of fertilizer and organic matter.

A suitable cropping system that adds organic matter is 3 or 4 years of hairy indigo followed by 1 year of corn and velvetbeans or some other row crop. Also suitable are 4 or 5 years of bahiagrass and sericea lespedeza followed by 1 or 2 years of corn and velvetbeans or some other row crop.

Tilling on the contour helps to reduce water erosion. In large fields soil blowing is greatly reduced by alternating strips of close-growing crops with strips of clean-tilled crops. Also suitable is 4 or 5 years of bahiagrass and sericea lespedeza followed by 1 or 2 years of corn and velvetbeans or some other crop. Terraces cannot be maintained on these loose, sandy soils.

If these soils are pastured, they should not be overgrazed. Although slash, longleaf, and loblolly pines grow slowly, they are suited to these soils if the blackjack oaks are controlled. Good pond sites and areas suitable for recreation occur in many places.

CAPABILITY UNIT Vw-2

This capability unit consists of wet, poorly drained, sandy soils that occur in nearly level depressions and along poorly defined drainageways. These soils have a black, loose loamy sand surface layer and a gray to dark-gray loamy sand subsoil. The soils in this unit are—

Plummer loamy sand.
Rutlege loamy sand.

These soils are rapidly permeable and have a low to medium available moisture capacity. They are low in plant nutrients and are medium acid. In the surface layer the organic-matter content is high.

These soils occupy about 1.5 percent of the county. Most of their acreage is wooded, but a few cleared areas are covered with carpetgrass. The soils are not suited to row crops and are hard to manage for pasture because excess water limits grazing. Drainage is difficult because, in many places, there are no adequate outlets, and because ditchbanks cave in the loose, sandy subsoil. Heavy fertilization is required for pasture and improves the grazing of carpetgrass.

If these soils are adequately drained, they are fairly well suited to bermudagrass. White clover and annual lespedeza can be seeded with those grasses. Lime should be applied in amounts indicated by soil tests. These soils are suited to loblolly pine, pond pine, and hardwoods. The native stands of timber can be improved by good management.

CAPABILITY UNIT VIe-2

This capability unit consists of eroded, moderately steep or steep soils that are generally shallow. In most places the surface layer of these soils is loamy sand 3 to 14 inches thick. The reddish subsoil, which is firm and compact or slightly cemented, retards the movement of water and air and the growth of roots. In some places the subsoil is exposed, and in most areas a few gullies have formed. The soils of this unit are—

Vaucluse loamy sand, 15 to 25 percent slopes, eroded.
Vaucluse soils, 10 to 15 percent slopes, eroded.

These soils have slow infiltration and permeability, and they lose much water in runoff. The available moisture capacity is low. The organic-matter content and natural fertility are low, and acidity is strong.

These soils make up less than 1 percent of the county. Most of the acreage is wooded. Because the soils are susceptible to severe erosion, they are not suited to row crops and are of limited use for hay and pasture. If forage crops are needed, sericea lespedeza and bermudagrass can be seeded but should not be overgrazed. Yields are low despite large additions of fertilizer. Lime generally is needed, and the amount should be determined by soil tests. Bicolor lespedeza can be grown as food and cover for wildlife. Pine trees are the best and safest use, though they grow slowly and are susceptible to windthrow.

CAPABILITY UNIT VIw-1

Grady loam, thin surface, is the only soil in this capability unit. It is a deep, poorly drained soil that occurs on uplands in egg-shaped depressions called Grady ponds. This soil has a black to very dark gray loam surface layer that is less than 5 inches thick and is underlain by black to very dark gray sandy clay or clay mottled with yellow and brown.

This soil has slow infiltration and permeability. The available moisture capacity is moderate. Although the water table is frequently at or near the surface, drained

areas are droughty during dry periods. Natural fertility is low, and acidity is strong, but the organic-matter content is high.

This soil occupies less than 1 percent of the county. It is in native hardwoods and pines and should be kept in these because it is not suited to cultivated crops. The use of this soil is severely limited by excess water, a thin surface soil, and slow permeability in the subsoil.

CAPABILITY UNIT VIs-1

This capability unit consists of strongly sloping, excessively drained sands and loamy sands that extend from the surface to a depth of 30 to 42 inches or more. These soils have a gray or brown surface layer and a yellowish-brown and yellowish-red subsoil. A few gullies have formed. The soils in this unit are—

Eustis loamy sand, 10 to 15 percent slopes.
Lakeland sand, 10 to 15 percent slopes.
Lakeland sand, moderately shallow, 10 to 15 percent slopes.

These soils are droughty because they have rapid permeability and low available moisture capacity. They are low in fertility, low or medium in organic-matter content, and strongly acid. Cleared areas are subject to erosion.

These soils account for less than 1 percent of the county, nearly all of which is wooded or in broomsedge. They are not suited to row crops but are suited to permanent close-growing plants and can be used for hay or limited grazing. They should be heavily fertilized and limed as indicated by soil tests. Sericea lespedeza, seeded alone or with bermudagrass or bahiagrass, is suitable for hay or pasture. Annual lespedeza can also be seeded with these grasses.

These soils are best suited as woodland. Enough moisture is available for slash, loblolly, and longleaf pines if the competing hardwoods are removed. Generally, native stands of trees can be made more productive by good management.

CAPABILITY UNIT VIIw-1

Only Swamp is in this capability unit. It is very poorly drained, strongly acid, and variable in texture, color, depth, and content of organic matter. The profile is only slightly developed. In some areas the surface layer is thick mucky loam and is underlain by sand.

This land makes up about 7.3 percent of the county. Except for a few areas, it is in woods containing sweetgum, blackgum, cypress, water-tolerant oaks, and a few pines. Drainage is difficult and impractical. Management for the purpose of increasing the production of native hardwoods is best. Many sites suitable for ponds occur.

Management of pasture

The soils of Bamberg County are suited to a number of native and introduced forage crops. Some of these crops do well in winter; others do well in summer. The growing season of the winter and summer crops usually overlaps in spring and fall. Tall fescue, white clover, and annual lespedeza are not suited to so many kinds of soils and weather as are the dependable summer perennials, bermudagrass, dallisgrass, bahiagrass, and sericea lespedeza.

Probably the most productive and economical pastures are mixtures of grasses and legumes. If production is to be maintained economically, lime and fertilizer should be applied in amounts indicated by soil tests.

Legumes respond well to applications of phosphate and potash, and grasses respond well to frequent applications of nitrogen. The nitrogen may be supplied in commercial fertilizer or by legumes in the pasture mixtures. Applications of lime may be needed every 3 or 4 years. A complete fertilizer should be applied annually.

Rotational or controlled grazing improves both the quantity and quality of the forage. The mowing of pastures as needed helps to control weeds and woody plants. The mowed plants act as an organic mulch and protect the soil from accelerated erosion. Decomposed mulch adds some fibrous material and increases the activity of microorganisms. By protecting the soil from the direct rays of the sun and the impact of raindrops, mulch on the surface lessens evaporation and erosion. This mulch also increases infiltration.

Controlling diseases and insects is necessary if yields of pasture plants are to be high and profitable. Suitable herbicides may be useful in controlling undesirable perennials.

Except in areas suited to tall fescue and white clover, winter annuals are most suitable for winter grazing. Small grain, ryegrass, and crimson clover can be planted (1) on a prepared seedbed, (2) by overseeding summer grasses, and (3) by sodding. To feed dairy cows, supplemental pasture of sudangrass or of the fast-growing millets may be used to add to the forage supplied by summer perennials.

Suitability and estimated yields

In this subsection, table 2 gives the relative suitability of each soil type for the crops that are commonly grown in the county or that are suited to the soils and to the climate. Table 3 lists the estimated average acre yields of the principal crops on each soil in the county.

RELATIVE SUITABILITY OF THE SOILS FOR CROPS

In table 2 the degree of suitability of a soil type for a named crop is expressed by index numbers. Number 1 indicates that the soil is well suited; numbers 2 and 3, that it is progressively less well suited; and number 4, that it is not at all suited.

Soils that have the index number 1 are the most desirable for the named crop. On these soils the least intensive management is needed, hazards are less than on other soils in the county, and yields are the most dependable. Soils having index number 2 are suited to the crop named, but they are materially limited by excess moisture or a lack of moisture, by a shallow root zone, by low fertility, or by some other factor. Index number 3 indicates that the soils cannot be expected to produce good yields of the specified crop without intensive management practices that generally do not pay. Number 4 indicates that the soil is not suited to the named crop.

ESTIMATED YIELDS

Listed in table 3 are the estimated average acre yields of the principal crops grown on each of the soils in Bamberg County under two levels of management. In columns A are the average yields that can be expected under the management now practiced in the county. In columns B are yields that can be expected under improved management.

TABLE 2.—*Suitability ratings*

[Number 1 means soil is well suited; number 2 means soil is suited; number

Soil type	Row crops					Truck crops						
	Corn	Cotton	Grain sorghum	Soybeans	Tobacco	Beans, green	Cantaloups	Cucumbers	Okra	Sweetpotatoes	Tomatoes	Watermelons
Bayboro loam	2	4	2	3	4	3	4	4	3	4	4	4
Caroline loamy sand	2	2	2	3	3	4	3	3	3	3	3	3
Coxville fine sandy loam	2	3	2	2	3	2	4	3	3	4	4	4
Coxville sandy loam	2	3	2	2	3	2	4	3	3	4	4	4
Dunbar fine sandy loam	1	2	2	1	2	2	4	3	2	4	3	4
Dunbar sandy loam	1	2	2	1	2	2	4	3	2	4	3	4
Eustis loamy sand	3	3	3	3	3	4	3	3	3	2	3	2
Eustis sand	3	3	3	3	3	4	3	4	3	3	3	2
Eustis sand, terrace	3	3	3	3	3	4	3	4	3	3	3	2
Faceville loamy sand	1	1	1	1	2	3	1	2	2	2	2	2
Gilead loamy sand	2	2	2	2	3	3	2	3	2	3	3	2
Goldsboro loamy sand	1	2	1	1	1	2	2	2	1	2	2	3
Goldsboro loamy sand, thick surface	2	3	2	2	2	3	3	3	2	2	3	3
Grady loam	2	3	2	2	4	2	4	3	2	4	4	4
Grady loam, thin surface	3	4	3	3	4	4	4	4	4	4	4	4
Izagora sandy loam, sandy substratum	2	2	2	2	2	2	3	3	2	3	3	3
Kalmia loamy sand	2	2	2	2	2	3	2	3	3	2	2	2
Klej loamy sand	2	4	3	3	2	3	4	3	2	4	4	4
Klej loamy sand, terrace	2	3	2	2	2	3	3	3	3	2	3	3
Lakeland sand	3	3	3	3	3	4	3	4	3	3	3	2
Lakeland sand, moderately shallow	3	2	3	3	3	4	3	3	3	2	3	1
Lakeland sand, moderately shallow, terrace	3	3	2	3	3	4	3	4	3	2	3	2
Lakeland sand, terrace	3	3	3	3	3	4	3	4	3	3	3	2
Leaf clay loam, thin surface	4	4	4	4	4	4	4	4	4	4	4	4
Leaf loamy sand, sandy substratum	3	4	3	3	4	3	4	3	3	4	4	4
Local alluvial land	1	2	1	1	3	1	2	2	1	3	3	3
Lynchburg loamy fine sand	1	2	1	1	1	1	4	2	1	3	3	3
Lynchburg loamy sand	1	2	1	1	1	1	4	2	1	3	3	3
Magnolia loamy sand	1	1	1	1	2	3	1	2	2	2	2	2
Marlboro loamy sand	1	1	1	1	1	3	1	2	2	2	1	2
McColl loam	2	3	2	2	4	2	4	3	2	4	4	4
McColl sandy loam	2	3	2	2	4	2	4	3	2	4	4	4
Mixed alluvial land	3	4	4	3	4	4	4	4	3	4	4	4
Myatt loamy sand	3	4	3	3	4	3	4	4	3	4	4	4
Norfolk loamy fine sand	1	1	1	1	1	3	1	2	2	1	1	1
Norfolk loamy fine sand, thick surface	2	2	2	2	2	3	2	3	2	1	2	1
Norfolk loamy sand	1	1	1	1	1	3	1	2	2	1	1	1
Norfolk sand, thick surface	2	2	2	2	2	3	2	3	2	1	2	1
Okenee loam	2	4	2	2	4	2	4	2	4	4	4	4
Orangeburg loamy sand	1	1	1	1	2	3	1	2	3	1	1	1
Plummer loamy sand	4	4	4	4	4	4	4	4	4	4	4	4
Portsmouth loam	2	4	2	2	4	2	4	2	4	4	4	4
Portsmouth sandy loam	2	4	2	2	4	2	4	2	4	4	4	4
Rains loamy sand	3	4	3	3	4	3	4	3	3	4	4	4
Ruston loamy sand	1	1	1	1	1	3	1	2	2	1	1	1
Ruston loamy sand, thick surface	2	2	2	2	2	3	2	3	2	1	2	1
Rutlege loamy sand	4	4	4	4	4	4	4	4	4	4	4	4
Swamp	4	4	4	4	4	4	4	4	4	4	4	4
Vaucluse loamy sand	3	2	2	3	3	4	3	3	3	2	3	2
Vaucluse sand, thick surface	3	3	3	3	3	4	3	4	4	3	3	2
Wahee sandy loam, sandy substratum	2	2	2	2	2	2	4	2	2	3	3	3

[1] Starr, pearl, German, and browntop millets.

of soils for specified crops

3 means soil is not well suited; and number 4 means soil is not suited]

Small grain				Grazing crops						Orchards	Wildlife crops		Legumes			
Barley	Oats	Rye	Wheat	Bahia-grass	Bermuda-grass	Dallis-grass	Fescue, tall	Millet [1]	Rye-grass	Peaches	Lespedeza, bicolor	Millet, browntop	Clover, white	Cowpeas	Lespedeza, sericea	Lupine
4	3	3	4	1	2	1	2	3	1	4	4	1	1	4	4	4
3	3	2	3	2	2	4	4	2	3	4	2	2	4	2	2	3
4	2	3	3	2	2	2	3	2	2	4	4	2	1	3	4	4
4	2	3	3	2	2	2	3	2	2	4	4	2	1	3	4	4
3	1	2	2	2	2	2	3	2	2	4	3	2	1	3	3	4
3	1	2	2	2	2	2	3	2	2	4	3	2	1	3	3	4
3	3	2	4	2	2	4	4	3	3	2	2	2	4	3	2	2
4	3	3	4	2	2	4	4	3	3	2	2	3	4	3	2	3
4	3	3	4	2	2	4	4	3	3	2	2	3	4	3	2	3
1	1	1	1	1	1	3	3	1	1	1	1	1	3	1	1	1
2	2	2	2	2	2	4	4	2	2	3	2	2	3	2	2	4
2	1	2	2	1	1	3	3	1	1	4	2	1	2	2	2	3
3	2	2	3	1	2	3	4	2	2	4	2	2	3	2	2	3
4	2	2	3	2	2	2	3	2	2	4	4	2	1	3	4	4
4	3	3	4	3	3	2	3	3	3	4	4	3	2	4	4	4
3	2	2	3	2	2	3	3	2	2	4	2	2	3	2	2	3
2	2	2	2	1	1	4	4	2	2	3	1	2	4	1	1	1
4	3	3	4	2	2	3	4	3	2	4	4	2	3	3	4	4
3	3	2	3	2	2	4	4	2	2	4	2	2	4	2	2	3
4	3	2	4	2	2	4	4	3	3	2	2	3	4	3	2	3
4	3	2	3	2	2	4	4	3	3	2	2	2	4	2	2	2
3	3	2	3	2	2	4	4	3	3	3	2	2	4	2	2	3
4	3	2	4	2	2	4	4	3	3	4	2	3	4	3	2	3
4	3	3	4	3	3	4	4	3	3	4	4	3	4	4	4	4
4	3	3	4	2	2	4	4	3	3	4	4	3	4	4	4	4
4	4	4	4	3	4	2	3	3	3	4	4	2	3	4	4	4
4	3	3	4	2	2	3	3	3	3	4	4	3	3	3	4	4
1	1	1	2	1	1	3	4	1	1	1	1	1	4	1	1	1
2	2	2	2	2	2	4	4	2	2	2	1	2	4	2	2	2
1	1	1	2	1	1	3	4	1	1	1	1	1	4	1	1	1
2	2	2	2	2	2	4	4	2	2	2	1	2	4	2	2	2
4	2	3	4	2	3	2	3	2	2	4	4	1	2	3	4	4
1	1	1	1	1	1	3	4	1	1	1	1	1	3	1	1	3
4	4	4	4	3	3	4	4	4	4	4	4	3	3	4	4	4
4	2	2	4	2	2	1	2	2	2	4	4	2	1	3	4	4
4	2	2	4	2	2	1	2	2	2	4	4	2	1	3	4	4
4	3	3	4	2	2	2	4	3	3	4	4	3	2	3	4	4
1	1	1	2	1	1	3	4	1	1	1	1	1	4	1	1	1
2	2	2	2	2	2	4	4	2	2	2	1	2	4	2	2	2
4	4	4	4	3	3	2	3	4	4	4	4	3	3	4	4	4
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
3	3	2	3	2	2	4	4	3	2	3	2	2	4	2	2	4
4	3	3	4	2	2	4	4	3	3	3	2	2	4	2	2	4
3	2	2	2	2	2	2	3	2	2	4	3	2	2	2	3	4

TABLE 3.—*Estimated average acre yields of the principal crops under two levels of management*

[Yields in columns A are those obtained under common management practices; those in columns B are yields to be expected under highest feasible management practices. Absence of figure indicates crop not commonly grown]

Soil	Cotton (lint)		Corn		Soybeans		Oats		Rye		Wheat		Hay		Pasture					
													Coastal bermudagrass		Coastal bermudagrass		Summer pasture [1]		Winter pasture [2]	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
	Lb.	*Lb.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Cow-acre-days* [3]	*Cow-acre-days* [3]	*Cow-acre-days* [3]	*Cow-acre-days* [3]	*Cow-acre-days* [3]	*Cow-acre-days* [3]
Bayboro loam	----	----	25	60	15	25	30	50	----	----	----	----	----	----	----	----	----	----	----	----
Caroline loamy sand, 2 to 6 percent slopes	300	500	35	60	18	25	30	50	----	----	15	25	2	5	150	200	----	----	----	----
Caroline loamy sand, 2 to 6 percent slopes, eroded	150	250	15	25	10	150	15	25	----	----	15	20	2	4	150	125	----	----	----	----
Caroline loamy sand, 6 to 10 percent slopes, eroded	----	----	----	----	----	----	----	----	----	----	----	----	2	3	125	200	----	----	----	----
Coxville sandy loam	----	----	----	40	----	20	----	30	----	----	----	----	----	----	150	90	150	300	90	180
Coxville fine sandy loam	----	----	----	40	----	20	----	30	----	----	----	----	----	----	150	90	150	300	90	180
Dunbar sandy loam	300	500	40	60	15	25	30	60	----	----	15	25	2	4	150	200	175	280	100	200
Dunbar fine sandy loam	300	500	40	60	15	25	30	60	----	----	15	25	2	4	150	200	175	280	100	200
Eustis loamy sand, 0 to 6 percent slopes	200	400	15	25	10	18	15	25	10	15	----	----	2	5	150	275	----	----	----	----
Eustis loamy sand, 6 to 10 percent slopes	150	300	15	20	10	18	15	25	10	15	----	----	2	5	150	275	----	----	----	----
Eustis loamy sand, 10 to 15 percent slopes	----	----	----	----	----	----	----	----	----	----	----	----	----	----	120	350	----	----	----	----
Eustis sand, 0 to 6 percent slopes	----	----	----	----	----	----	----	----	----	----	----	----	2	4	150	200	----	----	----	----
Eustis sand, 6 to 10 percent slopes	----	----	----	----	----	----	----	----	----	----	----	----	2	4	120	300	----	----	----	----
Eustis sand, terrace, 0 to 6 percent slopes	----	----	----	----	----	----	----	----	----	----	----	----	2	4	150	200	----	----	----	----
Faceville loamy sand, 2 to 6 percent slopes	350	750	25	60	15	25	25	50	----	----	15	30	2	4	180	265	100	200	100	200
Faceville loamy sand, 2 to 6 percent slopes, eroded	300	600	20	40	10	20	20	40	----	----	12	25	2	4	180	265	80	170	80	170
Faceville loamy sand, 6 to 10 percent slopes, eroded	300	500	20	40	10	20	20	40	----	----	15	20	2	4	180	265	80	170	80	170
Gilead loamy sand, 2 to 6 percent slopes	200	400	25	50	12	25	30	50	----	----	----	----	----	----	----	----	80	150	80	150
Goldsboro loamy sand	400	700	40	80	18	30	30	60	----	----	18	30	2	6	140	300	150	300	140	280
Goldsboro loamy sand, thick surface	400	600	40	70	15	25	25	50	----	----	----	----	2	6	----	----	125	270	140	280
Grady loam	----	----	30	70	10	25	25	65	----	----	----	25	----	----	----	----	110	200	----	----
Grady loam, thin surface	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Izagora sandy loam, sandy substratum	200	400	30	60	15	25	30	55	----	----	12	20	2	5	----	----	160	300	140	250
Kalmia loamy sand	300	600	20	55	15	30	30	60	----	----	12	25	2	5	150	250	160	300	140	250
Klej loamy sand	----	----	20	40	----	----	20	40	----	----	----	----	----	----	120	250	100	220	80	180
Klej loamy sand, terrace	----	----	20	40	----	----	20	40	----	----	----	----	----	----	----	----	100	220	80	180
Lakeland sand, 0 to 6 percent slopes	150	300	15	30	8	14	15	30	7	10	----	----	1	4	75	150	50	150	----	----
Lakeland sand, 6 to 10 percent slopes	100	250	15	30	8	14	15	30	7	10	----	----	1	4	75	150	50	150	----	----
Lakeland sand, 10 to 15 percent slopes	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Lakeland sand, moderately shallow, 0 to 2 percent slopes	200	400	15	30	10	18	15	30	7	10	----	----	3	6	175	250	80	200	----	----
Lakeland sand, moderately shallow, 2 to 6 percent slopes	200	400	15	30	10	18	15	30	7	10	----	----	3	6	175	250	80	200	----	----
Lakeland sand, moderately shallow, 6 to 10 percent slopes	175	400	15	30	10	18	15	30	7	10	----	----	3	6	175	250	70	190	----	----
Lakeland sand, moderately shallow, 10 to 15 percent slopes	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

See footnotes at end of table.

TABLE 3.—*Estimated average acre yields of the principal crops under two levels of management*—Continued

Soil	Cotton (lint)		Corn		Soybeans		Oats		Rye		Wheat		Hay		Pasture					
													Coastal bermudagrass		Coastal bermudagrass		Summer pasture [1]		Winter pasture [2]	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
	Lb.	*Lb.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Cow-acre-days* [3]	*Cow-acre-days* [3]	*Cow-acre-days* [3]	*Cow-acre-days* [3]	*Cow-acre-days* [3]	*Cow-acre-days* [3]
Lakeland sand, terrace, 0 to 6 percent slopes	150	300	15	30	8	14	15	30	7	10	----	----	1	4	75	150	50	150	----	----
Lakeland sand, moderately shallow, terrace, 0 to 4 percent slopes	200	400	15	30	10	18	15	30	7	10	----	----	3	6	150	250	80	200	----	----
Leaf loamy sand, sandy substratum	----	----	20	35	10	18	25	45	----	----	----	----	----	----	140	275	80	160	----	----
Leaf clay loam, thin surface	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	120	240	----	----
Local alluvial land	300	600	30	60	18	30	30	60	----	----	----	----	2	5	120	240	110	225	----	----
Lynchburg loamy sand	400	700	40	80	18	30	30	65	----	----	18	30	2	6	200	320	190	300	----	----
Lynchburg loamy fine sand	400	700	40	80	18	30	30	65	----	----	18	30	2	6	200	320	190	300	----	----
Magnolia loamy sand, 2 to 6 percent slopes	350	750	30	65	15	25	30	75	----	----	18	35	3	5	175	250	100	200	100	200
Magnolia loamy sand, 2 to 6 percent slopes, eroded	250	500	20	50	10	20	20	60	----	----	12	25	2	4	175	250	100	200	100	200
Magnolia loamy sand, 6 to 10 percent slopes, eroded	200	400	20	50	10	20	20	50	----	----	10	20	2	4	175	250	90	180	90	180
Marlboro loamy sand, 0 to 2 percent slopes	400	700	35	70	18	30	40	80	----	----	25	35	3	5	175	250	125	250	125	250
Marlboro loamy sand, 2 to 6 percent slopes	400	700	35	70	18	30	40	80	----	----	25	35	3	5	175	250	115	225	115	225
Marlboro loamy sand, 2 to 6 percent slopes, eroded	250	450	20	45	12	20	25	60	----	----	18	25	2	4	150	225	100	200	100	200
Marlboro loamy sand, 6 to 10 percent slopes, eroded	200	400	20	50	10	20	20	50	----	----	10	20	2	4	175	250	90	180	90	180
McColl sandy loam	----	----	30	70	10	25	25	65	----	----	15	25	----	----	----	----	110	200	----	----
McColl loam	----	----	30	70	10	25	25	65	----	----	15	25	----	----	----	----	110	200	----	----
Mixed alluvial land	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	70	100	----	----
Myatt loamy sand	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	150	290	90	140
Norfolk loamy sand, 0 to 2 percent slopes	400	800	30	70	15	30	40	80	----	----	20	35	3	6	150	225	150	225	100	200
Norfolk loamy sand, 2 to 6 percent slopes	400	800	30	70	15	30	40	80	----	----	20	35	3	6	150	225	150	225	100	200
Norfolk loamy sand, 2 to 6 percent slopes, eroded	400	800	30	70	15	30	40	80	----	----	20	35	3	6	150	225	150	225	100	200
Norfolk loamy sand, 6 to 10 percent slopes, eroded	350	550	20	45	15	25	25	55	5	10	15	25	3	7	150	225	115	200	115	200
Norfolk loamy fine sand, 0 to 2 percent slopes	400	800	30	70	15	30	40	80	----	----	20	35	3	6	150	225	150	225	100	200
Norfolk loamy fine sand, 2 to 6 percent slopes	400	800	30	70	15	30	40	80	----	----	20	35	3	6	150	225	150	225	100	200
Norfolk loamy fine sand, thick surface, 0 to 2 percent slopes	400	600	25	50	18	30	30	60	5	10	15	25	3	7	150	225	140	220	140	220
Norfolk loamy fine sand, thick surface, 2 to 6 percent slopes	400	600	25	50	18	30	30	60	5	10	15	25	3	7	150	225	140	220	140	220
Norfolk sand, thick surface, 0 to 2 percent slopes	400	600	25	50	18	30	30	60	5	10	15	25	3	7	150	225	140	220	140	220
Norfolk sand, thick surface, 2 to 6 percent slopes	400	600	25	50	18	30	30	60	5	10	15	25	3	7	150	225	140	220	140	220

See footnotes at end of table.

TABLE 3.—*Estimated average acre yields of the principal crops under two levels of management*—Continued

Soil	Cotton (lint)		Corn		Soybeans		Oats		Rye		Wheat		Hay		Pasture					
													Coastal bermudagrass		Coastal bermudagrass		Summer pasture [1]		Winter pasture [2]	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
	Lb.	*Lb.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Cow-acre-days* [3]	*Cow-acre-days* [3]	*Cow-acre-days* [3]	*Cow-acre-days* [3]	*Cow-acre-days* [3]	*Cow-acre-days* [3]
Norfolk sand, thick surface, 6 to 10 percent slopes	350	550	20	45	15	25	25	55	5	10	15	25	3	7	150	225	115	200	115	200
Okenee loam	-----	-----	20	40	15	25	30	45	----	----	----	----	----	----	-----	----	180	280	-----	-----
Orangeburg loamy sand, 0 to 2 percent slopes	400	800	40	70	20	30	40	80	----	----	20	30	3	6	140	210	140	210	100	200
Orangeburg loamy sand, 2 to 6 percent slopes	400	800	35	60	18	25	35	75	----	----	15	25	3	6	140	210	140	210	100	200
Orangeburg loamy sand, 2 to 6 percent slopes, eroded	300	650	25	50	12	20	25	50	----	----	12	20	2	4	150	210	140	200	100	190
Orangeburg loamy sand, 6 to 10 percent slopes, eroded	250	500	20	40	10	18	20	40	----	----	10	18	2	4	150	210	125	200	100	190
Plummer loamy sand	-----	-----	----	----	----	----	----	----	----	----	----	----	----	----	-----	-----	90	40	-----	-----
Portsmouth sandy loam	-----	-----	25	60	15	25	30	50	----	----	----	----	----	----	-----	-----	190	250	-----	-----
Portsmouth loam	-----	-----	25	60	15	25	30	50	----	----	----	----	----	----	-----	-----	190	250	-----	-----
Rains loamy sand	-----	---	----	----	----	----	----	----	----	----	----	----	----	----	-----	-----	90	220	90	180
Ruston loamy sand, 0 to 2 percent slopes	400	800	40	70	20	30	40	80	----	----	20	30	3	6	175	225	150	225	100	200
Ruston loamy sand, 2 to 6 percent slopes	400	800	35	60	18	25	35	75	----	----	15	25	3	6	175	225	150	225	100	200
Ruston loamy sand, 6 to 10 percent slopes	350	700	30	50	15	20	25	50	----	----	12	22	2	5	175	225	125	200	125	200
Ruston loamy sand, 2 to 6 percent slopes, eroded	300	650	25	45	12	20	25	50	----	----	12	20	2	4	140	210	150	225	100	200
Ruston loamy sand, 6 to 10 percent slopes, eroded	250	500	20	40	10	18	20	40	----	----	10	18	2	4	140	210	125	200	125	200
Ruston loamy sand, thick surface, 0 to 2 percent slopes	400	650	35	60	18	25	35	70	----	----	18	25	2	5	140	210	140	210	100	200
Ruston loamy sand, thick surface, 2 to 6 percent slopes	400	650	35	60	18	25	35	70	----	----	18	25	2	5	140	210	140	210	100	200
Ruston loamy sand, thick surface, 6 to 10 percent slopes	350	600	20	50	10	20	30	55	----	----	12	20	2	4	140	210	100	200	100	200
Rutlege loamy sand	-----	-----	----	----	--	----	----	----	----	----	----	----	----	----	-----	-----	90	140	-----	-----
Swamp	-----	-----	----	----	----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----
Vaucluse loamy sand, 6 to 10 percent slopes, eroded	-----	-----	----	----	----	----	----	----	----	----		----	----	----	100	175	70	100	70	100
Vaucluse loamy sand, 15 to 25 percent slopes, eroded	-----	----	----	----	----	----	----	----	----	----	----	----	---	--	90	150	-----	-----	-----	-----
Vaucluse sand, thick surface, 6 to 10 percent slopes	150	300	15	30	8	15	30	50	5	10	----	----	2	5	140	210	140	210	-----	-----
Vaucluse soils, 10 to 15 percent slopes, eroded	-----	-----	----	----	----	----	----	----	----	----	- -	----	----	----	100	175	-----	-----	-----	-----
Wahee sandy loam, sandy substratum	200	350	20	50	----	--	35	65	----	----	----	----	----	----	-----	-----	180	350	150	300

[1] Summer pasture consists of dallisgrass, annual lespedeza, white clover, and bahiagrass.

[2] Winter pasture consists of fescue and white clover.

[3] Cow-acre-days is a term used to express the number of days 1 acre will support one animal unit (one cow, steer, or horse; five hogs; or seven sheep or goats) without injury to the pasture.

The yields in columns A are based largely (1) on observations made by members of the soil survey party, (2) on information obtained by interviews with farmers and other agricultural workers who have had experience with the soils and crops of the county, and (3) on comparisons with yield tables for other counties in South Carolina that have similar soils.

The requirements of improved management vary according to the soils, but to obtain the yields in columns B, it is necessary to (1) select suitable crops and cropping systems; (2) add commercial fertilizer, lime, and manure in proper amounts; (3) use suitable tillage methods; (4) return organic matter to the soils; (5) control water adequately; (6) maintain or improve tilth of the soils; and (7) conserve soil material, plant nutrients, and moisture.

By comparing yields in columns B with those in columns A, one may gain some idea of the response a soil can make to improved management. On practically all soils in the county, more intensive management increases yields.

Use of Soils as Woodland [2]

Forests of pine and of oak, hickory, and other hardwoods covered most of Bamberg County before it was settled. These virgin forests first provided materials for the naval stores industry and later provided timber for the logging industry. As the virgin trees were depleted, the second-growth stands were used for naval stores and timber. Before the 20th Century began, most of the woodland had been cut over, and the production of naval stores and logs had declined.

Pines and commercially valuable hardwoods are now grown for local markets. The principal pines are loblolly, longleaf, slash, and pond. Important hardwoods are sweetgum, blackgum, and yellow-poplar. Hardwoods and cypress grow in areas that are too wet for the pines.

Soil properties that affect tree production

The most important properties that affect tree growth are those related to the ability of the soils to supply moisture and to provide growing space for roots. Among these properties are the thickness of the surface layer and the subsoil, the texture and consistence of the soil material, the depth to impermeable material, and the depth to the water table. Drainage is also important and depends on some of these properties and on the slope. Aeration should be good so that tree roots get enough air.

Woodland suitability groups

To assist those who manage woodland, the soils of the county have been placed in 15 woodland suitability groups. Each group is made up of soil types that produce similar kinds of trees, that require similar management, and that have about the same potential productivity.

The 15 groups are listed in table 4 and are later described in the text. The potential productivity of selected trees is given as a *site index* in table 4 and and in the text. For a given soil the site index is the height, in feet, that a specified kind of tree will reach on that soil in 50 years. Each site index shown in table 4 is an average of all the soils in the woodland suitability group.

[2] By George E. Smith, jr., woodland conservationist, Soil Conservation Service.

Also in table 4 each woodland suitability group is rated for hazards and limitations that affect the management and growth of trees. The hazards and limitations are plant competition, seedling mortality, equipment limitation, windthrow hazard, and erosion hazard. The ratings are expressed in relative terms—slight, moderate, or severe—and are explained in the following paragraphs. Except for the site indexes, the ratings in table 4 were estimated largely on the basis of the experience and judgment of local soil scientists, woodland conservationists, foresters, and landowners. The ratings, therefore, represent the best information available, but they are tentative and may be revised as more information becomes available.

Plant competition, or brush encroachment, is the invasion or growth of undesirable plants and occurs where openings are made in the canopy. Competition is *slight* if the competing plants do not prevent the natural regeneration or the early growth of desirable trees, or do not interfere with the growth of planted seedlings. Competition is *moderate* if competing plants delay natural or artificial regeneration but do not prevent the growth of a fully stocked, normal stand. Competition is *severe* if competing plants prevent adequate natural or artificial regeneration, unless the site is extensively prepared by weeding and other practices.

Seedling mortality refers to the mortality of naturally occurring or planted tree seedlings as influenced by the kinds of soil or topography when plant competition is not a limiting factor. Mortality is *slight* if 0 to 25 percent of the seedlings die; *moderate* if 25 to 50 percent; and *severe* if more than 50 percent. If seedling mortality is severe, much replanting is required, the seedbed should be specially prepared, and planting should be by superior methods.

Equipment limitations vary according to slope range, soil wetness, and other factors that restrict or prohibit the use of equipment commonly used in tending and harvesting trees. Equipment limitations are *slight* if the kind of equipment and its season of use are not restricted. Limitations are *moderate* if the kind or operation of equipment is limited by one or more of the following: slope, stones, or obstructions; seasonal wetness; physical soil characteristics; and possible injury to tree roots, soil structure, or soil stability. Limitations are *severe* if special equipment is needed and its use is severely restricted by one or more of the factors listed for "moderate," and by safety in operation.

Windthrow hazard is the danger of trees being blown over by the wind. It varies according to shallowness, stoniness, droughtiness, wetness, and other soil characteristics; kinds of trees; and thinning, cutting, leaving protective borders, and other forestry practices used to minimize tree losses. Withthrow hazard is *slight* if normally no trees are blown down by the wind. It is *moderate* if some trees are expected to blow down when the soil is excessively wet and the wind is high. Windthrow hazard is *severe* if many trees are expected to blow down when the soils are excessively wet and the wind is moderate or high.

Erosion hazard refers to potential soil erosion that may occur where soil is managed according to usual practices. Erosion is *slight* if the problems of erosion control are not important. It is *moderate* if some attention must be given to prevent unnecessary soil erosion. The erosion hazard is *severe* if intensive management must be planned that

provides the use of specialized equipment by special methods of operation.

WOODLAND SUITABILITY GROUP 1

This group consists of deep, very friable, excessively drained sands of the uplands and stream terraces. Infiltration and permeability are rapid, and the available moisture capacity is very low. The organic-matter content and natural fertility are low. The soils are—

Eustis sand.
Eustis loamy sand.
Eustis sand, terrace.
Lakeland sand.
Lakeland sand, terrace.

Longleaf, slash, and loblolly pines are preferred on these soils, but shortleaf pine may be grown. The preferred trees are grown for sawtimber and pulpwood and for poles and piling of medium and short length. Shortleaf pine is grown mainly for pulpwood. Arizona cypress and redcedar are suitable for the production of Christmas trees and as the understory in windbreak plantings. Laurel cherry is suited as the understory and overstory in windbreaks. The important commercial hardwoods are not suited to these soils. Persimmon, hickory, gum, and oak are the main trees that supply food for wildlife, but the production of acorns is restricted by the low moisture supply.

The average site indexes are 78±7 for loblolly pine, 67±5 for longleaf pine, 53±7 for shortleaf pine, and about 78 for slash pine. On slopes of more than 6 percent, the site index is as much as 10 points higher than these averages if the soils have a favorable moisture supply and site indexes are as much as 10 points lower on dry slopes. In the Sandhills the average site indexes are 10 points lower. In well-stocked, unmanaged stands 50 years of age, the average annual growth (Scribner) is approximately 400 board feet per acre for loblolly pine, 190 for longleaf pine, 120 for shortleaf pine, and 385 for slash pine.

Among the trees that compete severely with the preferred trees are the oaks, blackjack, turkey, bluejack, post, water, live, and red, and hickory, sassafras, persimmon, sweetgum, and blackgum. Wiregrass also competes. Frequently needed to eliminate or control competing plants, or to prepare sites for adequate regeneration, are intensive practices such as furrowing, disking, land clearing, brush cutting, undercutting root systems, burning, or applying herbicides.

TABLE 4.—*Woodland suitability groups, their potential productivity,*

[Dashed lines indicate that tree is not

Group and description	Map symbols	Potential productivity (site index at 50 years)[1,2]				
		Loblolly pine	Longleaf pine	Shortleaf pine	Slash pine[3]	Pond pine
Group 1: Deep, very friable, excessively drained sands	EmB, EmC, EmD; EsB, EsC; EtB; LaB, LaC, LaD; LlB.	78±7	67±5	53±7	78	----
Group 2: Deep, very friable, well-drained sands that have a loamy sand subsoil at a depth of 30 to 42 inches.	LdA, LdB, LdC, LdD; LkB----	80±5	70±6	68±7	80	----
Group 3: Deep, well drained and moderately well drained loamy sands.	CaB, CaB2, CaC2; FaB, FaB2, FaC2; Gb; Ka; MaB, MaB2, MaC2; MbA, MbB, MbB2, MbC2; NfA, NfB; NoA, NoB, NoB2, NoC2; OrA, OrB, OrB2, OrC2; RmA, RmB, RmB2, RmC, RmC2.	84±5	71±7	69±9	84	----
Group 4: Deep, friable, well-drained soils that have a thick loamy sand or sand surface layer.	Gk; NkA, NkB; NsA, NsB, NsC; RsA, RsB, RsC.	81±8	66±3	57	81	----
Group 5: Deep, well drained or moderately well drained, alluvial soils.	Lo----	99±2	72	67	99	----
Group 6: Moderately deep, moderately well drained or somewhat poorly drained soils on stream terraces.	Wa----	80±7	62±3	73	80	--- ---
Group 7: Nearly level, somewhat poorly drained or poorly drained soils that have a sandy loam to sandy clay loam subsoil.	Db; Dn; Ig; Km; Kt; Ls; Ly; Ra-	80±3	71±4	70	86	66

See footnotes at end of table.

Seedlings die in bare areas because of high temperatures and insufficient moisture. On slopes of not more than 6 percent, 50 to 75 percent of the planted seedlings are expected to survive. Light seedbed preparation insures adequate natural restocking. On slopes of more than 6 percent, seedling mortality ranges from slight to severe, depending on the moisture supply. More than 50 percent of the planted seedlings die in rolling and hummocky areas because the ridges and slopes are usually dry. Superior planting methods, seedlings of high quality, and replanting are usually needed to establish adequate stands. Because the available moisture capacity is limited, natural regeneration cannot be relied on to produce well-stocked stands of preferred trees. On dry, smooth slopes 50 percent mortality is expected.

Seedling mortality is slight on slopes of more than 6 percent that lie between lower and higher land and receive water through seepage. Also, the slopes of this land are more productive than drier slopes.

The use of equipment generally is limited only on slopes of more than 15 percent, and on these slopes limitation is moderate. Because the surface of these slopes is loose and sandy, light, rubber-tired vehicles have poor traction. Also, heavy equipment is not well supported and requires extra power to operate. These sands are abrasive and cause wear on equipment during normal operations.

Trees generally are not subject to windthrow on these soils.

Because the surface layer is thick, the erosion hazard is slight. Furrowing on steep slopes should follow the contour to minimize soil movement and silting damage to seedlings planted in furrows. Windstrips may be needed to protect seedlings from soil blowing in open areas in spring.

On these soils the Nantucket pine tip moth (*Rhyacionia frustrana*) severely damages loblolly pine. Many kinds of conifers are likely to be damaged seriously by a root-rot fungus (*Fomes annosus*), particularly if their roots have been injured by equipment, livestock, or fire. Nematodes appear in sandy soils, especially those that have been cultivated, and they injure seedlings of susceptible trees.

WOODLAND SUITABILITY GROUP 2

In this group are deep, very friable, well-drained sands on uplands and terraces. These soils have a loamy sand subsoil at a depth of 30 to 42 inches. Infiltration and permeability are rapid, and the available moisture capacity is low. The moisture supply is generally more favor-

and major limitations and hazards affecting management

generally suited to the soils in the group]

Hazards and limitations					Suitable trees
Plant competition	Seedling mortality	Equipment limitation	Windthrow hazard	Erosion hazard	
Severe	Slight to severe	Slight or moderate	Slight	Slight	Pines.
Severe	Slight or moderate	Slight or moderate	Slight	Slight or moderate	Pines.
Severe	Slight	Slight or moderate	Slight	Slight or moderate	Pines.
Severe	Slight or moderate	Slight	Slight	Slight	Pines.
Slight to severe	Slight to severe	Slight or moderate	Slight	Slight	Lowland hardwoods and pines.
Slight to severe	Slight or moderate	Slight or moderate	Slight or moderate	Slight to severe	Lowland hardwoods and pines.
Severe	Slight or moderate	Slight or moderate	Slight	Slight	Pines.

TABLE 4.—*Woodland suitability groups, their potential productivity,*

Group and description	Map symbols	Potential productivity (site index at 50 years)[1] [2]				
		Loblolly pine	Longleaf pine	Shortleaf pine	Slash pine[3]	Pond pine
Group 8: Poorly drained soils that are on stream terraces and have a silty clay to clay subsoil.	Lm; Ln	94±6	67	----	94	----
Group 9: Poorly drained or very poorly drained soils that are on uplands and have a sandy clay to clay subsoil.	Cf; Co; Gr; Gt; Mc; Md	89±7	69±6	67	87	70
Group 10: Very poorly drained soils that have a black surface layer that is high in organic-matter content and is underlain by a sandy loam to clay loam subsoil.	Ok; Po; Pr	98±5	68±4	----	98	71±8
Group 11: Poorly drained or very poorly drained soils that have a gray to black surface layer and a loamy sand to sand subsoil.	My; Pm; Ru	85±3	72±5	----	85	76
Group 12: Moderately well drained or somewhat poorly drained soils that are in the Sandhills and have a sandy clay subsoil.	GaB	83±8	64±5	69	83	72
Group 13: Very poorly drained soils that have a black surface layer and a clay loam to clay subsoil.	Ba	103±7	----	----	106	----
Group 14: Well-drained to excessively drained soils that are underlain by a compacted, thin, discontinuous subsoil.	VaC2, VaE2; VcC; VsD2	63±7	55±8	51±14	63	----
Group 15: Miscellaneous land types	Mn; Sw	(4)	(4)	(4)	(4)	(4)

[1] The site index for a given soil is the height, in feet, that a specified kind of tree will attain in 50 years in an even-aged, well-managed stand. The site indexes are tentative and are subject to revision. They are based on field studies by the Soil Conservation Service and the South Carolina State Commission of Forestry.

able on the terraces than it is on the uplands. Organic-matter content and natural fertility are low. The soils are—

Lakeland sand, moderately shallow.
Lakeland sand, moderately shallow, terrace.

Slash, loblolly, and longleaf pines are preferred on these soils, but shortleaf pine is also suitable. These trees are grown for pulpwood and saw logs and for poles and piling of medium length. Arizona cypress and redcedar are suitable for Christmas trees. These trees and laurel cherry are suitable as the understory in windbreak plantings. Generally, commercial hardwoods are not suited to these soils. Dogwood, persimmon, gum, oak, and hickory are the main trees that supply food for wildlife. The oaks generally produce more acorns on the stream terraces than on uplands because the terraces supply more moisture.

The average site indexes are 80±5 for loblolly pine, 70±6 for longleaf pine, 68±7 for shortleaf pine, and about 80 for slash pine. These soils contain more fine material than the soils in group 1 and have a more favorable moisture supply. In well-stocked, unmanaged stands 50 years of age, the average annual growth (Scribner) is approximately 425 board feet per acre for loblolly pine, 230 for longleaf pine, 330 for shortleaf pine, and 410 for slash pine.

Competing severely with the preferred trees are hickory, dogwood, sassafras, persimmon, blackgum, and many kinds of oak—blackjack, post, water, willow, white, live, red, turkey, bluejack, and sand post. Wiregrass also competes. Frequently needed to eliminate or control competing plants, or to prepare sites for adequate regeneration, are intensive practices such as furrowing, disking, land clearing, brush cutting, undercutting root systems, burning, or applying herbicides.

On dry slopes of more than 10 percent, seedling mortality is moderate. From 50 to 75 percent of the planted seedlings can be expected to survive, and some replanting is needed to fill large openings. Because the available

and major limitations and hazards affecting management—Continued

Hazards and limitations					Suitable trees
Plant competition	Seedling mortality	Equipment limitation	Windthrow hazard	Erosion hazard	
Slight to severe	Slight to severe	Slight or moderate	Slight	Slight	Lowland hardwoods and pines.
Moderate or severe	Slight to severe	Moderate or severe	Slight	Slight	Pines and cypress or blackgum.
Slight to severe	Moderate or severe	Severe	Slight	Slight	Lowland hardwoods and pines.
Slight to severe	Severe	Severe	Slight	Slight	Pond hardwoods and pines.
Severe	Slight	Moderate	Slight	Moderate	Pines.
Slight to severe	Moderate or severe	Severe	Slight	Slight	Lowland hardwoods and pines.
Slight to severe	Slight to severe	Slight to severe	Moderate or severe	Moderate or severe	Pines.
(4)	(4)	(4)	(4)	(4)	(4).

[2] Standard deviations of the site index are not shown for tree if data on soils in group were not sufficient for determinations to be made.
[3] Growth of slash pine approximates that of loblolly pine.
[4] Varied.

moisture capacity is low, natural restocking of some abandoned fields or open areas is not adequate, and planting is needed in obtaining a well-stocked stand. Planned plantings and site preparation are beneficial. On the less sloping soils in this group, seedling mortality is slight.

Generally, the use of equipment is not restricted on these soils unless slopes exceed 15 percent. Nevertheless, the surface of these soils is loose and sandy, and light, rubber-tired vehicles have poor traction. Also, heavy equipment is not well supported and requires extra power to operate. Because these sands are abrasive, the wear on equipment is excessive during normal operations.

Trees normally are not subject to windthrow on these soils.

The erosion hazard is slight or moderate. Soil blowing is serious in some open areas during spring, and windstrips may be needed to protect seedlings.

On these soils the Nantucket pine tip moth (*Rhyacionia frustrana*) severely damages loblolly pine. Also, a root-rot fungus (*Fomes annosus*) attacks many kinds of conifers and damages them severely.

Nematodes severely injure seedlings of susceptible trees on sandy soils, especially those that have been cultivated.

WOODLAND SUITABILITY GROUP 3

This group consists of deep, nearly level to strongly sloping loamy sands and a loamy fine sand that have a sandy loam to sandy clay subsoil. Most of these soils are well drained. Infiltration is moderate to rapid, permeability is moderate, and the available moisture capacity is moderate to high. The organic-matter content and natural fertility are moderate. The soils are—

Caroline loamy sand.
Faceville loamy sand.
Goldsboro loamy sand.
Kalmia loamy sand.
Magnolia loamy sand.
Marlboro loamy sand.
Norfolk loamy fine sand.
Norfolk loamy sand.
Orangeburg loamy sand.
Ruston loamy sand.

Goldsboro loamy sand is moderately well drained.

Loblolly and slash pines are preferred on the soils in this group, but longleaf and shortleaf pines are also suitable. These trees are grown for saw logs and pulpwood and for poles and piling of medium length. Black walnut is fairly well suited but does not attain its maximum height. Laurel cherry, redcedar, Arizona cypress, and ligustrum are suited as the understory in windbreak plantings. Oak, hickory, black cherry, mulberry, and other trees produce food for wildlife.

The average site indexes are 84±5 for loblolly pine, 71±7 for longleaf pine, 69±9 for shortleaf pine, and about 84 for slash pine. If the moisture supply is favorable on slopes greater than 6 percent, the site index is higher than the average. In well-stocked, unmanaged stands 50 years of age, the average annual growth (Scribner) is approximately 475 board feet per acre for loblolly pine, 240 for longleaf pine, 345 for shortleaf pine, and 455 for slash pine.

Among the trees that compete severely with the pines are sassafras, dogwood, persimmon, sweetgum, hickory, and red, white, and water oaks. Frequently needed to eliminate or control competing plants, or to prepare sites for regeneration, are furrowing, land clearing, disking, burning, brush cutting, undercutting root systems, applying herbicides, and other intensive practices.

Seedling mortality is slight, and stocking from the first planting is generally satisfactory. If adequate sources of seed are available, and competing plants are controlled, a well-stocked stand regenerates naturally.

Restriction to the use of equipment is moderate in eroded areas and on steep slopes but is slight in other areas. Damage to soil structure and tree roots is prevented by avoiding the use of equipment during wet periods. Windthrow is not likely.

The erosion hazard is slight or moderate. This hazard can be lessened by avoiding operations that disturb protective cover and by locating, as much as possible, roads and firebreaks on the contour. Soil blowing occurs in large, open areas, but seedlings planted in windbreaks can be protected by Abruzzi rye or similar crops.

The Nantucket pine tip moth (*Rhyacionia frustrana*) severely attacks loblolly pines, especially those on the loamy sands. Nematodes severely injure seedlings.

WOODLAND SUITABILITY GROUP 4

This group consists of deep, well-drained, friable soils that have a thick loamy sand or sand surface layer and a sandy loam to sandy clay loam subsoil. Infiltration and permeability are rapid, and the available moisture capacity is moderate. The organic-matter content and natural fertility are moderate to low. The soils are—

Goldsboro loamy sand, thick surface.
Norfolk sand, thick surface.
Norfolk loamy fine sand, thick surface.
Ruston loamy sand, thick surface.

Loblolly and slash pines are preferred on these soils, but longleaf and shortleaf pines are also suitable. These trees are grown for sawtimber and pulpwood and for poles and piling of medium length. Laurel cherry, redcedar, Arizona cypress, and ligustrum are suitable as the understory in windbreak plantings. The main trees that supply food for wildlife are persimmon, mulberry, dogwood, pecan, black cherry, and hickory.

The average site indexes are 81±8 for loblolly pine, 66±3 for longleaf pine, about 57 for shortleaf pine, and about 81 for slash pine. In well-stocked, unmanaged stands 50 years of age, the average annual growth (Scribner) is approximately 440 board feet per acre for loblolly pine, 180 for longleaf pine, 170 for shortleaf pine, and 420 for slash pine.

Upland oak, hickory, dogwood, and other plants compete severely with the pines. Frequently needed to eliminate or control competing plants, or to prepare sites for regeneration, are land clearing, disking, furrowing, undercutting root systems, burning, brush cutting, or applying herbicides.

Generally, seedling mortality is slight, and less than 25 percent of the seedlings die. In a few places mortality is moderate, and 25 to 50 percent of the seedlings die. Although replanting is needed to fill some large openings, natural reseeding is normally adequate if sites are prepared, competing vegetation is controlled, and adequate sources of seed are nearby.

Equipment can generally be operated without risk of damage to tree roots and without causing further erosion. Windthrow is only a slight hazard.

The hazard of water erosion is slight, but some soil blowing occurs in large, open areas. If seedlings are planted for windbreaks, they can be protected from soil blowing by overplantings of Abruzzi rye or other plants.

WOODLAND SUITABILITY GROUP 5

Only Local alluvial land is in this group. It is deep, nearly level, and moderately well drained or well drained. Fine sandy loam and silt loam extend throughout the surface layer and the subsoil. This land is in depressions of uplands and is flooded occasionally. Infiltration, permeability, and the available moisture capacity are moderate, but there is enough moisture for tree growth. The organic-matter content and natural fertility are medium.

The preferred trees are sweetgum, blackgum, yellow-poplar, ash, sycamore, cottonwood, black walnut, and red maple; the oaks, cherrybark, Shumard, white, and swamp chestnut; and loblolly and slash pines. Other suitable trees are hackberry, beech, birch, American and winged elms, hickory, magnolia, persimmon, mulberry, dogwood, redcedar, honeylocust, and the oaks, post, water, and willow. Some of these trees can be used for sawtimber, pulpwood, high-quality veneer, or long poles and piling. Most of them supply food for wildlife.

The average site indexes are 99±2 for loblolly pine and about 72 for longleaf pine, 67 for shortleaf pine, and 99 for slash pine. In well-stocked, unmanaged stands 50 years of age, the average annual growth (Scribner) is approximately 685 board feet per acre for loblolly pine, 250 for longleaf pine, 315 for shortleaf pine, and 610 for slash pine.

Competition from undesirable trees, and from grasses, vines, and reeds, is severe. Land clearing, disking, furrowing, brush cutting, burning, and applying herbicides are among the practices needed to eliminate or control unwanted trees or other plants so that sites can be prepared for pines and selected hardwoods. If particular kinds of trees are not preferred, these practices are not used and the most hardy trees survive.

Seedling mortality is slight to severe. Restocking is generally satisfactory in formerly cultivated fields and in

areas where competing plants are controlled, provided that natural seed sources are adequate or that seeds or seedlings are planted properly. Generally, less than 25 percent of the planted seedlings die.

The equipment limitation is generally slight or moderate, but the use of equipment is generally restricted for less than 3 months a year. Because Local alluvial land is fine textured, it puddles and packs if forestry operations are carried out during wet periods. Tillage and grazing should also be avoided during wet periods so that damage to soil structure and tree roots is prevented. Occasionally, access to Local alluvial land is prevented by flooding.

Windthrow and erosion are only slight hazards on this land. During prolonged droughts, sweetgum and other trees are damaged by dieback.

WOODLAND SUITABILITY GROUP 6

Wahee sandy loam, sandy substratum, is the only soil in this group. It occurs on terraces and is moderately deep and moderately well drained or somewhat poorly drained. The surface layer ranges from sandy loam to clay loam, and the subsoil ranges from silty clay to clay. Water moves slowly through the subsoil, and occasional flooding is likely. Infiltration and permeability are slow, and the available moisture capacity is high. The organic-matter content and natural fertility are moderate.

The preferred trees are loblolly and slash pines; sweetgum, blackgum, and ash; the oaks, cherrybark, white, swamp chestnut, and Shumard; and red maple and yellow-poplar. Some of these trees produce sawtimber and pulpwood, veneer, or poles and piling of medium length. Many of them provide food for wildlife.

The average site indexes are 80±7 for loblolly pine, 62±3 for longleaf pine, and about 73 for shortleaf pine and 80 for slash pine. In well-stocked, unmanaged stands 50 years of age, the average annual growth (Scribner) is approximately 430 board feet per acre for loblolly pine, 140 for longleaf pine, 400 for shortleaf pine, and 410 for slash pine.

Plant competition is severe for the preferred pines and the less hardy hardwoods. Land clearing, disking, brush cutting, burning, applying herbicides, or other intensive practices are needed to eliminate or control competing plants and to prepare sites so that regeneration is adequate. If particular kinds of trees are not preferred, a well-stocked stand of mixed trees can be expected.

Seedling mortality is slight in most areas, but it is moderate in severely eroded areas and in areas that are flooded for long periods. From 25 to 50 percent of the planted seedlings die. Replanting is necessary to fill large openings. Floods during the growing season impair the germination of seed, slow growth, and kill some trees.

Equipment limitations are slight or moderate. This soil puddles and packs easily if forestry operations are carried out during wet periods. Tillage and grazing should be avoided during wet periods so that damage to soil structure and roots is prevented. Excess water should be controlled so that roads can be maintained and forestry operations made more easy. Drainage ditches and other structures may be damaged by flooding and by the debris that floods bring in. Some kinds of equipment and tools are difficult to use in droughty periods.

The windthrow hazard generally is slight. Also slight is the erosion hazard, but operations that disturb the protective cover should be avoided because erosion could be severe. Dieback kills hardwoods during droughts.

WOODLAND SUITABILITY GROUP 7

This group consists of nearly level, somewhat poorly drained or poorly drained soils, most of which have a sandy loam surface layer and a sandy loam to sandy clay loam subsoil. Infiltration and permeability are moderate to rapid, and the available moisture capacity is moderate to low. The soils are—

Dunbar sandy loam.
Dunbar fine sandy loam.
Izagora sandy loam, sandy substratum.
Klej loamy sand.
Klej loamy sand, terrace.
Lynchburg loamy sand.
Lynchburg loamy fine sand.
Rains loamy sand.

The Klej soils have a loamy sand surface layer and a loamy sand to sand subsoil.

Loblolly and slash pines are preferred on the soils in this group, but shortleaf and longleaf pines are also suitable. These trees are grown for sawtimber and pulpwood and for poles and piling of medium length. Pond pine is less desirable than the other pines. It grows in many burned-out and poorly drained areas and produces pulpwood and small sawtimber. Oak, maple, and gum provide abundant food for wildlife.

The average site indexes are 80±3 for loblolly pine, 71±4 for longleaf pine, and about 70 for shortleaf pine, 86 for slash pine, and 66 for pond pine. In well-stocked, unmanaged stands 50 years of age, the average annual growth (Scribner) is approximately 425 board feet per acre for loblolly pine, 240 for longleaf pine, 360 for shortleaf pine, 475 for slash pine, and 100 for pond pine.

Competing severely with the preferred trees are water oak, willow oak, sweetgum, maple, gallberry, myrtle, sawpalmetto, wiregrass, briers, and other plants. These competing plants can be eliminated or controlled by land clearing, disking, brush cutting, burning, applying herbicides, or other intensive practices.

Seedling mortality is generally slight. In poorly drained areas and in depressions, however, mortality is moderate, and because of excess surface water, from 25 to 50 percent of planted seedlings are expected to die. Natural regeneration of preferred trees cannot be relied on, and replanting may be needed to fill large openings. More seedlings survive if sites are prepared for planting and excess water is drained (fig. 14).

The equipment limitation is slight on the somewhat poorly drained soils and is moderate on the poorly drained ones. In addition, restricted grazing is required on the poorly drained soils. To prevent damage to soil structure and to tree roots, cattle should not be concentrated nor equipment operated during wet periods. Controlling excess water, especially in large areas, reduces the equipment limitation.

Windthrow and erosion are only slight hazards.

WOODLAND SUITABILITY GROUP 8

This group consists of flat or nearly level, poorly drained soils that occur on stream terraces and are flooded frequently. The surface layer is loamy sand to clay loam, and the subsoil is silty clay to clay. Infiltration and permeability are slow, and the available moisture capacity is

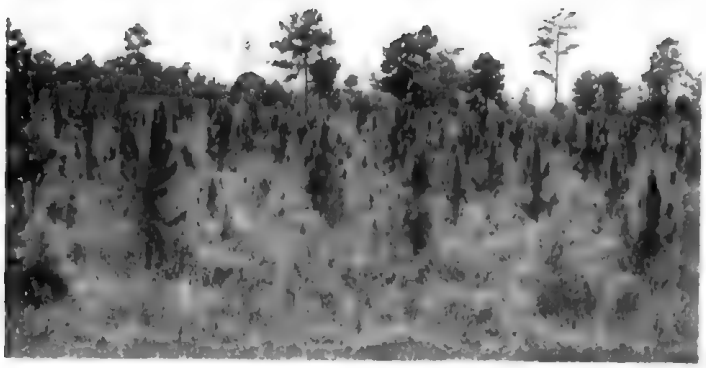

Figure 14.—**Slash pine in a Carolina bay that has been drained. Soil in subclass IVw.**

high. The organic-matter content and natural fertility are moderate. The soils are—

Leaf loamy sand, sandy substratum.
Leaf clay loam, thin surface.

Loblolly pine and slash pine are preferred pines. Preferred hardwoods include yellow-poplar, sweetgum, blackgum, cherrybark oak, white oak, swamp chestnut oak, ash, and red maple. The pine trees are used for sawtimber and pulpwood and for long poles and piling, and some of the hardwoods are used for high-quality veneer. Hardwoods also produce excellent wildlife food.

The average site indexes are 94±6 for loblolly pine and about 67 for longleaf pine and 94 for slash pine. In well-stocked, unmanaged stands 50 years of age, the average annual growth (Scribner) is approximately 610 board feet per acre for loblolly pine, 190 for longleaf pine, and 560 for slash pine.

Unwanted trees or other plants compete severely, particularly if management favors a tree that is not well suited to these soils. Intensive practices are needed to control or eradicate competing plants and to prepare sites before planting or for natural regeneration. These practices include clearing, disking, furrowing, brush cutting, burning, and applying herbicides. If a specific tree is not favored in management, competition is not important and a stand of mixed trees can be expected.

Seedling mortality is generally slight; less than 25 percent of the planted stock is likely to die. In some periods, however, mortality is severe because prolonged flooding occurs during the growing season, during seed germination, or immediately after germination. After this flooding, more than 75 percent of the seedlings need to be replanted. Superior planting methods are needed to lessen the chance of severe mortality. Water management, where practical, helps to insure good survival of planted stock and adequate natural regeneration. It also benefits established plants.

The equipment limitation is moderate on the clay loam in this group and is slight on the loamy sand. Drainage is generally needed if good roads and access routes are maintained. To prevent damage to soil structure and tree roots, cattle should not be concentrated nor equipment used during wet periods and after floods.

Windthrow and erosion are only slight hazards.

WOODLAND SUITABILITY GROUP 9

This group consists of nearly level, poorly drained or very poorly drained soils that have a sandy loam or loam surface layer and a sandy clay to clay subsoil. Infiltration and permeability are slow, and water stands in slight depressions for long periods. The available moisture capacity is high, and the organic-matter content and natural fertility are low. The soils are—

Coxville sandy loam.
Coxville fine sandy loam.
Grady loam.
Grady loam, thin surface.
McColl loam.
McColl sandy loam.

In adequately drained areas, loblolly and slash pines are preferred for sawtimber and pulpwood, but longleaf, shortleaf, and pond pines are also suitable. All these trees produce poles and piling of medium or long length. If drainage is not adequate for pines, blackgum and cypress are preferred, but sweetgum and maple are also suitable. Trees on these poorly drained soils are inferior to those of the same kind on alluvial flood plains.

The average site indexes are 89±7 for loblolly pine, 69±6 for longleaf pine, and about 67 for shortleaf pine, 87 for slash pine, and 70 for pond pine. The site indexes for cypress and hardwoods have not been determined. In well-stocked, unmanaged stands 50 years of age, the average annual growth (Scribner) is approximately 545 board feet per acre for loblolly pine, 215 for longleaf pine, 315 for shortleaf pine, 485 for slash pine, and 115 for pond pine.

Plant competition is moderate or severe. Competing severely with the preferred pines are sweetgum, maple, holly, ironwood, elm, gallberry, myrtle, briers, and sedges (fig. 15). Before planting seedlings, these competing plants should be eliminated or controlled by burning, land clearing, brush cutting, applying herbicides, or other intensive practices. Water management is also needed.

Plant competition is moderate in poorly drained areas where cypress and hardwoods are preferred. In these areas the establishment and growth of seedlings or sprouts may be delayed. The preferred trees benefit from moderately intensive site preparation and from management that controls competing plants.

Mortality of seedlings ranges from slight to severe. It is slight in high areas and is severe in low, very poorly drained areas or in depressions where water stands for long periods. Some low areas are almost treeless because of seedling mortality, previous cuttings, or severe fires during droughts. Water management is necessary in many places if planting of seedlings is to be successful or if adequate stands of preferred trees are to regenerate naturally.

The equipment limitation is moderate or severe. It is moderate in high areas and severe in low areas and depressions. Water management is required to permit access for managing the woodland and maintaining roads. Concentration of livestock and operation of equipment should be avoided in low areas to prevent compaction of soil and damage to tree roots.

Windthrow and erosion are only slight hazards.

WOODLAND SUITABILITY GROUP 10

This group consists of nearly level to depressional, very poorly drained soils that have a black surface layer and

Figure 15.—**Brush control is needed for optimum growth of loblolly pine in this area of Coxville sandy loam.**

a gray sandy loam to clay loam subsoil. Infiltration is moderate to high; permeability and the available moisture capacity are moderate. These soils are high in organic-matter content and moderate in natural fertility. They are—

Okenee loam.
Portsmouth sandy loam.
Portsmouth loam.

In adequately drained areas loblolly and slash pines are preferred for sawtimber and pulpwood, but pond and longleaf pines are also suitable. In these drained areas the pines produce high yields of sawtimber of good quality and long poles and piling. Sweetgum, blackgum, tupelo, maple, and cypress are suited to areas not drained enough for the pines.

The average site indexes are 98±5 for loblolly pine, 68±4 for longleaf pine, about 98 for slash pine, and 71±8 for pond pine. Site indexes have not been determined for cypress and hardwoods. In well-stocked, unmanaged stands 50 years of age, the average annual growth (Scribner) is approximately 670 board feet per acre for loblolly pine, 205 for longleaf pine, 600 for slash pine, and 120 for pond pine.

Plant competition on these soils is slight to severe. Among the trees that compete severely with the preferred pines are water oak, willow oak, maple, sweetgum, and blackgum. Gallberry, myrtle, bay, briers, and other small plants also compete severely. Needed to control or eliminate competing plants, or to prepare sites for establishing seedlings of preferred trees, are burning, land clearing, disking, brush cutting, applying herbicides, or other intensive practices. Water management is also needed. Plant competition is slight in places where specific trees are not preferred in management.

In ponded areas mortality of seedlings is severe, and water management is needed to insure adequate natural or artificial stocking of desired trees. In areas not ponded the mortality is moderate, and from 25 to 50 percent of the planted seedlings are likely to die. Replanting is needed to fill the large openings. Natural regeneration cannot be relied on to establish stands of preferred trees unless sites are prepared.

The equipment limitation is severe because drainage is very poor. Water management is required to permit access for managing the woodland and maintaining roads. To prevent puddling, compaction, and damage to soil structure and tree roots, livestock should not be concentrated nor equipment used during wet periods.

Windthrow and erosion are only slight hazards.

WOODLAND SUITABILITY GROUP 11

In this group are poorly drained or very poorly drained soils that have a gray to black loamy sand surface layer. The subsoil of most soils in the group is loamy sand to sand. Infiltration and permeability are rapid, and the available moisture capacity is low. These soils are flooded frequently and remain ponded for long periods. They are—

Myatt loamy sand.
Plummer loamy sand.
Rutlege loamy sand.

Myatt loamy sand has a sandy loam to clay loam subsoil.

Loblolly and slash pines are preferred on the soils in this group, but longleaf pine is also suitable. These trees are suitable for sawtimber and pulpwood and for poles and piling of medium length. In areas that receive seepage from higher lying soils, suitable trees are pond pine, blackgum, sweetgum, juniper, ash, and red maple. Both the hardwoods and the conifers on these soils are inferior to similar trees on the alluvial flood plains. Most of the hardwoods produce food for wildlife.

The average site indexes are 85±3 for loblolly pine, 72±5 for longleaf pine, and about 85 for slash pine and 76 for pond pine. In well-stocked, unmanaged stands 50 years of age, the average annual growth (Scribner) is approximately 490 board feet per acre for loblolly pine, 250 for longleaf pine, 465 for slash pine, and 145 for pond pine.

Plant competition on these soils is slight to severe. Hardwoods, switchcane, briers, vines, gallberry, bay, and other plants compete severely with the pines or the weaker hardwoods that are selected for management. Needed to control or eradicate these competing plants are burning, land clearing, disking, brush cutting, applying herbicides, or other intensive practices. Water management is also needed. If a specific tree is not selected for management, plant competition is slight.

The expected seedling mortality is severe on these soils, and at least 50 percent of the planted seedlings are expected to die. Natural regeneration cannot be relied on to produce adequate stands. Needed to insure well-stocked stands are water management, intensive site preparation, superior seedlings, and planting by superior methods.

Seepage and poor drainage severely restrict the use of equipment and the amount of grazing. Water management is needed in maintaining roads and in obtaining access to the woodland. It also helps to prevent compaction and damage to tree roots. Some areas may be difficult to drain, for the subsoil is coarse textured and the ditchbanks are likely to cave.

Windthrow and erosion are only slight hazards.

WOODLAND SUITABILITY GROUP 12

Gilead loamy sand is the only soil in this group. It is a moderately well drained or somewhat poorly drained

soil that has a sandy clay subsoil. Infiltration is moderate to high, permeability is slow, and the available moisture capacity is moderate. The organic-matter content and natural fertility are low.

Loblolly and slash pines are preferred on this soil, but longleaf, shortleaf, and pond pines are also suitable. These trees are grown for sawtimber and pulpwood and for poles and piling of medium length.

The average site indexes are 83±8 for loblolly pine, 64±5 for longleaf pine, and about 69 for shortleaf pine, 83 for slash pine, and 72 for pond pine. In well-stocked, unmanaged stands 50 years of age, the annual growth (Scribner) is approximately 465 board feet per acre for loblolly pine, 160 for longleaf pine, 345 for shortleaf pine, and 115 for pond pine.

Plant competition is severe. Blackgum, sweetgum, myrtle, gallberry, and other plants delay natural regeneration and restrict initial growth. Natural regeneration cannot be relied on to produce adequate stands. Needed in controlling or eradicating competing plants, or in preparing sites before planting seedlings, are burning, land clearing, disking, furrowing, brush cutting, applying herbicides, or other intensive practices.

Seedling mortality is slight in areas where plant competition is not a hazard. Adequate stands are obtained through planting or natural regeneration.

The equipment limitation is moderate, and the roots of trees are damaged if equipment is used or livestock is concentrated during wet periods. Deep ruts form where traffic on logging roads is heavy. Windthrow is only a slight hazard.

Erosion is a moderate hazard. Roads, firebreaks, and furrows should follow the contour wherever possible, and the disturbance of protective cover should be kept to a minimum.

WOODLAND SUITABILITY GROUP 13

Only Bayboro loam is in this group. It is a nearly level or depressional, very poorly drained soil that has a black loam surface layer and a clay loam to clay subsoil. Infiltration and permeability are very low, and the available moisture capacity is high. The organic-matter content is high, and natural fertility is moderate.

Loblolly and slash pines are preferred on this soil, but water management is needed if stands of these trees are to produce maximum yields. These trees produce sawtimber, pulpwood, and long poles and piling. Also suitable on this soil are sweetgum, blackgum, tupelo, cypress, red maple, and water-tolerant oaks. These trees produce food for wildlife.

The average site indexes are 103±7 for loblolly pine, and about 106 for slash pine. In well-stocked, unmanaged stands 50 years of age, the average annual growth (Scribner) is approximately 740 board feet per acre for loblolly pine and 680 for slash pine.

Sweetgum, oak, hickory, maple, and smaller plants compete severely with the preferred pines and with suitable hardwoods that may be preferred in management. Needed to eliminate or control competing plants, or to prepare sites before establishing seedlings, are burning, land clearing, disking, brush cutting, applying herbicides, and other intensive management. Water management is also needed on this soil. Unless a specific tree is selected for management, plant competition is slight.

Seedling mortality of the preferred pines is moderate or severe because surface runoff is slow or water is ponded. In many places management is needed if planting or natural regeneration is to be successful. Where adequate drainage outlets are not available, water-tolerant trees should be preferred in management.

The use of equipment is severely limited by poor drainage, ponding, and the texture of the surface layer. This restriction lasts longer than 3 months in some years. Water management that provides adequate drainage is necessary if roads are to be maintained and the best use is to be made of the soils. Concentrated grazing and the use of equipment should be avoided in wet areas so that damage to soil structure and tree roots is prevented.

Windthrow and erosion are only slight hazards on this soil.

WOODLAND SUITABILITY GROUP 14

This group consists of well-drained to excessively drained loamy sands that have a compacted, thin, discontinuous subsoil. Infiltration is rapid, permeability is moderate to slow, and the available moisture capacity is moderate to low. The organic-matter content and natural fertility are low. The soils are—

Vaucluse loamy sand.
Vaucluse sand, thick surface.
Vaucluse soils.

Because these soils are shallow, their root zone and, consequently, their potential for producing trees is limited. Slash, loblolly, shortleaf, and longleaf pines are preferred, but they do not yield sawtimber of high quality. Best suited are trees grown for pulpwood, small saw logs, and short poles and piling. Acorns from sandhill oaks are suitable as food for wildlife, but production of these nuts is poor on the soils in this group.

The average site indexes are 63±7 for loblolly pine, 55±8 for longleaf pine, 51±14 for shortleaf pine, and about 63 for slash pine. In well-stocked, unmanaged stands 50 years of age, the average annual growth (Scribner) is approximately 210 board feet per acre for loblolly pine, 75 for longleaf pine, 100 for shortleaf pine, and 185 for slash pine.

Plant competition is slight in small inclusions of severely eroded soils because these soils are too droughty for hardwoods. In most places competition is severe and is mainly from turkey oak, post oak, bluejack oak, and wiregrass. Needed to control or eradicate competing plants, or to prepare sites before establishing seedlings, are brush cutting, furrowing, land clearing, disking, applying herbicides, or other intensive practices.

Seedling mortality ranges from slight to severe. On gentle slopes competition is slight, and the natural seedlings may be dense if a source of seeds is nearby and the supply of moisture is favorable. In areas that have a low available moisture capacity and a shallow root zone, seedling mortality is severe and 50 percent of the seedlings are expected to die. Site preparation, mulching, use of seedlings of high quality, and other practices are needed to establish adequate stands.

The use of equipment is severely limited on the steep slopes, for erosion has exposed the clayey subsoil in some places. On the more gentle slopes the use of equipment is only slightly limited.

The windthrow hazard is moderate or severe. Trees do not develop a root system strong enough to hold the tree

upright in winds if the root zone is thin (fig. 16) because of severe erosion or because the subsoil is cemented or contains concretions. On the deeper soils the hazard is moderate, but some windthrow is expected during high winds. In some places the winds do not overthrow the trees, but they may loosen and injure the roots. Also, fires severely damage roots where the soil is shallow. Trees damaged and weakened by loosening, by a root-rot fungus (*Fomes annosus*), or by insects should be removed.

These soils are subject to moderate or severe erosion because of slope, a loose surface layer, and a slowly permeable subsoil. If they are saturated, the soils erode easily, particularly on the steeper slopes. The contour should be followed in all operations, including the making of roads, furrows, and firebreaks.

WOODLAND SUITABILITY GROUP 15

This group consists of two miscellaneous land types that have varied characteristics. They are—

Mixed alluvial land.
Swamp.

Some important hardwoods grow on these land types, and southern pines could be grown if the land were drained and protected from flooding.

Woodland protection

If yields are to be high from woodland, the trees must be protected from fire, overgrazing, wind erosion, and diseases and insects.

Protection from fire.—The system used in protecting woodland from fire depends mainly on the physiography of the woodland and on the natural barriers to the spread of fire. The location of firebreaks and the distance between them is determined by the location of the existing roads, sloughs, swamps, and drainageways, and by the degree of erosion in the woodland. The type of fire-fighting equipment selected depends on the ease or difficulty of operating the equipment.

Protection from overgrazing.—Overgrazing injures woodland because the grazing animals trample and pack the soils so that rain runs off quickly and little soaks into the soils where it can be taken in by tree roots. A soil that is trampled when wet hardens when it dries. Also, heavy grazing lowers the quality of the site by destroying soil structure. Damage from grazing is most likely on the finer textured soils, on soils that have a plastic subsoil, and on eroded soils. If pine woodland is properly managed, it can be grazed, but not heavily.

***Figure 16.*—Because the root zone is thin, windthrow is severe on this Vaucluse soil.**

Protection from wind erosion.—The quality of the trees and the productivity of the woodland are lowered by the loss of soil through erosion. Wind erosion is a serious hazard on the coarse-textured soils in the middle and upper parts of the Coastal Plain. To prevent soil blowing, a windbreak is needed that has an overstory of native pine and an understory of redcedar, laurel cherry, ligustrum, or other suitable small trees and other plants. In some places it is advisable to establish a protective cover before pine seedlings are planted. In heavily cutover areas the soils are susceptible to soil blowing because they are dried by the sun and the wind. Wind velocity can be reduced by planting shrubs or low trees around the edge of the woodland.

Protection from diseases and insects.—The damage to trees from diseases and insects generally is more severe on the soils that have a shallow root zone, a low capacity to hold moisture, and other unfavorable characteristics. Trees on the poorer soils are not strong enough to withstand the attacks of diseases and insects.

The cause of spot die-out, a fairly new disease of young loblolly pine, has not been determined, but the number of trees destroyed by this disease seems to be greatest on very poorly drained soils that have little or no surface soil.

Dieback, which has recently damaged stands of sweetgum, is probably caused by lack of moisture. Adverse soil characteristics may also be a main cause of root-rot fungus (*Fomes annosus*). Until recently this disease killed only redcedar in the southeast, but in Georgia and South Carolina it is now killing slash pines, or is weakening them and causing windthrow. Some slash pines planted on fine-textured soils have been infected.

Longleaf pine seedlings are highly susceptible to brown spot needle blight (*Scirrhia acicola*). This disease also damages slash pine and may cause the browning of needles on loblolly pine.

The growth of seedlings in very sandy soils, particularly in those that have been cropped, may be checked when nematodes form knots on the roots of trees. The trees soon appear unhealthy, and many of them die.

Injury by the Nantucket pine tip moth (*Rhyacionia frustrana*) is greatest on loblolly pine and short leaf pine growing in abandoned fields, especially if the soils are not well suited to these trees. Slash pine is less susceptible to attack by the moth and has been planted successfully on the coarse-textured soils of the middle and upper parts of the Coastal Plain.

In some places pines have been weakened by fire, drought, overmaturity, lightning, wind, or generally poor growing conditions. These trees are particularly susceptible to injury by the pine engraver beetle (*Ips* sp.), the black turpentine beetle (*Dendroctonus terebrans*), and the southern pine beetle (*Dendroctonus frontalis*).

Water management in woodland

Tree seedlings cannot survive if they are submerged and then scalded when they dry out during hot periods. If

drainage is poor, a good drainage system keeps water moving so that seedlings are not damaged. Water-control gates discharge excess surface water and help to maintain the water level that is needed for plant growth.

Artificial drainage markedly improves the growth of some kinds of pine. It also improves access routes, logging conditions, and habitats for wildlife. But drainage is not required on all wet woodland. A hardwood-cypress forest on undrained bottom lands probably yields better than a pine forest in similar areas that have been drained. The hardwood-cypress forest contains gum, ash, cottonwood, and cypress, and it can produce logs for veneer and large sawtimber.

To attract migrating waterfowl, shallow impoundments have been built in recent years by constructing low dikes and dams in flats or sloughs. These impoundments increase the amount of water that is stored in the soil. This extra moisture benefits trees during dry periods in summer, but it may damage them unless it is drained promptly each spring.

Woodland production and yields

Table 5, based on published research (*10*)[3], shows how site index ratings can be converted readily to obtain prob-

[3] Italic numbers in parentheses refer to Literature Cited, p. 103.

TABLE 5.—*Abridged stand and yield information for well-stocked, unmanaged stands of normally growing loblolly, shortleaf, longleaf, and slash pines*

[Statistics are compiled from United States Department of Agriculture Miscellaneous Publication No. 50 (*10*). Absence of figure indicates that trees of the specified size are not generally processed]

Site index	Age	Loblolly pine			Shortleaf pine			Longleaf pine			Slash pine		
		Total merchantable volume per acre		Average d.b.h.[1]	Total merchantable volume per acre		Average d.b.h.[1]	Total merchantable volume per acre		Average d.b.h.[1]	Total merchantable volume per acre		Average d.b.h.[1]
	Years	*Cords*	*Bd. ft. (Scribner)*	*Inches*	*Cords*	*Bd. ft. (Scribner)*	*Inches*	*Cords*	*Bd. ft. (Scribner)*	*Inches*	*Cords*	*Bd. ft. (Scribner)*	*Inches*
50	20						3.2	4		2.8			
	30				23	50	4.8	11	200	4.1			
	40				33	1,450	6.1	17	900	5.1			
	50				43	4,400	7.3	21	2,100	5.9			
	60				48	8,150	8.3	25	3,700	6.6			
	70				51	11,600	9.1	28	5,400	7.2			
	80				53	14,400	9.9	31	7,250	7.8			
60	20	12		4.6	12		3.8	8	50	3.3	20		4.4
	30	25	1,250	6.6	32	750	5.7	19	900	4.9	32	1,050	6.1
	40	35	4,500	8.1	46	4,400	7.3	27	2,800	6.0	40	4,100	7.6
	50	41	8,550	9.4	54	10,600	8.4	34	5,900	7.0	45	7,500	8.6
	60	46	12,250	10.4	60	15,850	9.7	40	9,300	7.8	48	10,500	9.3
	70	49	15,250	11.2	65	19,700	10.6	45	12,350	8.5			
	80	51	17,550	11.9	68	22,600	11.4	49	15,000	9.1			
70	20	17	100	5.4	18		4.5	14	200	3.8	28		5.2
	30	31	3,500	7.8	41	2,400	6.6	28	2,000	5.5	40	3,500	7.3
	40	42	9,400	9.6	56	9,900	8.4	39	6,100	6.8	49	9,300	8.9
	50	50	15,200	10.9	66	17,850	9.8	48	11,400	7.9	55	14,250	10.0
	60	55	19,600	12.1	73	23,450	11.0	55	16,400	8.8	59	17,400	10.8
	70	59	22,550	13.0	79	27,550	12.0	62	20,400	9.6			
	80	62	24,600	13.8	83	30,700	12.8	67	23,700	10.3			
80	20	22	700	6.2	25	200	5.2	20	550	4.3	35	900	6.0
	30	38	6,500	8.7	48	5,200	7.5	36	3,800	6.1	48	7,300	8.3
	40	51	14,800	10.7	65	16,200	9.5	49	10,800	7.6	58	15,150	10.1
	50	60	21,700	12.2	77	24,900	11.1	61	17,600	8.8	65	20,350	11.4
	60	66	26,400	13.6	85	30,900	12.3	70	23,500	9.8	69	23,600	12.2
	70	70	29,500	14.6	92	35,200	13.3	78	28,300	10.6			
	80	73	31,550	15.5	97	38,550	14.2	85	32,100	11.5			
90	20	27	1,600	6.9	30	1,100	6.1	26	1,000	4.7	41	2,750	6.8
	30	46	10,700	9.6	54	11,200	8.8	43	6,500	6.7	54	12,300	9.4
	40	61	20,550	11.7	73	23,400	10.9	59	15,800	8.3	66	20,600	11.4
	50	71	28,250	13.6	87	32,400	12.6	72	24,100	9.6	73	25,900	12.9
	60	78	33,100	15.0	98	38,700	14.0	84	31,000	10.7	78	29,600	13.9
	70	82	36,600	16.2	105	43,000	15.2	94	36,200	11.6			
	80	85	39,100	17.2	112	46,500	16.2	103	40,600	12.5			
100	20	32	2,750	7.4	33	3,200	7.3	30	1,700	5.2	46	5,050	7.7
	30	53	14,800	10.4	60	17,700	10.4	49	10,150	7.4	59	16,850	10.5
	40	71	26,700	12.8	82	30,600	12.8	66	20,200	9.0	72	25,450	12.8
	50	84	35,050	14.7	99	40,000	14.7	82	29,550	10.5	81	31,250	14.5
	60	92	41,000	16.2	111	46,400	16.2	96	37,400	11.7	86	35,400	15.5
	70	96	44,750	17.6	121	50,900	17.5	108	43,000	12.7			
	80	100	47,400	18.6	128	54,400	18.6	118	48,100	13.7			

[1] Diameter at breast height.

able yields expressed as cords or as board feet. This table can be used as a guide until information on managed stands is available.

In table 6 are listed the average site indexes for soils in the Sandhills. These soils generally are not so productive as other soils in the county.

Management of Soils for Wildlife and Fish [4]

The soils in Bamberg County have been placed in five groups according to their suitability for supporting specified kinds of wildlife. Each wildlife suitability group is made up of soils that can support about the same number and kinds of wildlife and that respond to management in about the same way.

The suitability of the soils in the county for supporting wildlife depends on (1) their productivity of native and planted food and cover; (2) their wetness or droughtiness; (3) their susceptibility to overflow or severe erosion; and (4) their suitability for practices and structures needed in wildlife management.

The five wildlife groups are discussed in the following pages. The soils in these groups do not correspond to the soils in the capability units, because the soils in more than one capability unit may have about the same potential for supporting wildlife. The management suggested for each group is effective about 95 percent of the time. The management needed may be different from that described because of a variation from typical in the soil mapped, or because a soil mapping unit in some places includes other soils that are too small to be mapped separately. Table 7 rates the suitability of each group for the kinds of wildlife generally found in the county.

[4] By WILLIAM W. NEELY, biologist, Soil Conservation Service, Walterboro, S.C.

WILDLIFE SUITABILITY GROUP 1

The soils in this group support greater numbers and more kinds of wildlife than the soils in any other wildlife group in the county. Management generally is easier on these soils and is more likely to be successful. The soils are—

Caroline loamy sand, 2 to 6 percent slopes.
Caroline loamy sand, 2 to 6 percent slopes, eroded.
Caroline loamy sand, 6 to 10 percent slopes, eroded.
Faceville loamy sand, 2 to 6 percent slopes.
Faceville loamy sand, 2 to 6 percent slopes, eroded.
Faceville loamy sand, 6 to 10 percent slopes, eroded.
Gilead loamy sand, 2 to 6 percent slopes.
Kalmia loamy sand.
Magnolia loamy sand, 2 to 6 percent slopes.
Magnolia loamy sand, 2 to 6 percent slopes, eroded.
Magnolia loamy sand, 6 to 10 percent slopes, eroded.
Marlboro loamy sand, 0 to 2 percent slopes.
Marlboro loamy sand, 2 to 6 percent slopes.
Marlboro loamy sand, 2 to 6 percent slopes, eroded.
Marlboro loamy sand, 6 to 10 percent slopes, eroded.
Norfolk loamy fine sand, 0 to 2 percent slopes.
Norfolk loamy fine sand, 2 to 6 percent slopes.
Norfolk loamy sand, 0 to 2 percent slopes.
Norfolk loamy sand, 2 to 6 percent slopes.
Norfolk loamy sand, 2 to 6 percent slopes, eroded.
Norfolk loamy sand, 6 to 10 percent slopes, eroded.
Norfolk loamy fine sand, thick surface, 0 to 2 percent slopes.
Norfolk loamy fine sand, thick surface, 2 to 6 percent slopes.
Orangeburg loamy sand, 0 to 2 percent slopes.
Orangeburg loamy sand, 2 to 6 percent slopes.
Orangeburg loamy sand, 2 to 6 percent slopes, eroded.
Orangeburg loamy sand, 6 to 10 percent slopes, eroded.
Ruston loamy sand, 0 to 2 percent slopes.
Ruston loamy sand, 2 to 6 percent slopes.
Ruston loamy sand, 6 to 10 percent slopes.
Ruston loamy sand, 2 to 6 percent slopes, eroded.
Ruston loamy sand, 6 to 10 percent slopes, eroded.
Ruston loamy sand, thick surface, 0 to 2 percent slopes.
Ruston loamy sand, thick surface, 2 to 6 percent slopes.
Ruston loamy sand, thick surface, 6 to 10 percent slopes.

TABLE 6.—*Average site indexes for four southern pines, at 50 years of age, on selected soil types in the Sandhills* [1]

[Absence of site index indicates tree generally does not occur on the soil or that data were not available]

Soil type	Slope [2]	Erosion	Average site index [3]			
			Loblolly pine	Longleaf pine	Shortleaf pine	Pond pine
	Percent					
Dunbar sandy loam	0–2	Slight		73(1)		
Gilead loamy sand	2–6	Slight or moderate	83±8(10)	63±3(6)	69±0(3)	72(1)
Gilead loamy sand (thicker than normal surface layer).	2–6	Slight	76±6(7)	69±4(7)	69(1)	
Lakeland sand	2–6	Slight	69±9(12)	58±6(45		
	6–10	Slight		49±7(8)		72(1)
Lakeland sand, moderately shallow	0–6	Slight	68±0(3)	60±3(6)		
	6–10	Slight	80(2)	72±11(4)		53(1)
Norfolk loamy fine sand	2–6	Slight or moderate	72(1)			
Ruston loamy sand	2–6	Slight		74(1)		
Vaucluse loamy sand	0–6	Slight	70(2)	60(2)		
	6–10	Moderate		55±7(3)	56(1)	
	10–15	Moderate		57±2(6)		
	15–25	Moderate or severe	60(1)	46±2(4)	36(1)	
Vaucluse loamy sand (thicker than normal surface layer).	6–25	Slight	56(2)	56±5(10)		

[1] From field studies by Soil Conservation Service and South Carolina State Commission of Forestry (*3*).
[2] On the basis of slope range, some soils were combined and others divided.
[3] Variations (±) given if trees were measured on three or more sites. Number in parentheses indicates number of measurements made on each soil.

TABLE 7.—*Suitability of wildlife groups for kinds of wildlife*

Kind of wildlife	Wildlife suitability group				
	1	2	3	4	5
Bobwhite (quail)	Well suited	Suited	Suited	Marginal	Not suited.
Deer	Well suited	Marginal	Well suited	Well suited	Well suited.
Doves	Well suited	Marginal	Well suited	Marginal	Not suited.
Ducks (fields)	Marginal	Not suited	Suited	Well suited	Marginal.
Ducks (woodland ponds)	Marginal	Not suited	Well suited	Well suited	Suited.
Fish	Well suited	Suited	Suited	Marginal	Not suited.
Foxes	Well suited	Well suited	Well suited	Not suited	Not suited.
Opossums	Well suited	Suited	Suited	Not suited	Marginal.
Rabbits	Well suited	Marginal	Suited	Marginal	Not suited.
Raccoons	Suited	Marginal	Suited	Well suited	Suited.
Squirrels	Well suited	Marginal	Suited	Well suited	Well suited.
Snipe	Not suited	Suited	Marginal	Well suited	Not suited.
Wild geese	Marginal	Not suited	Well suited	Suited	Not suited.
Wild turkeys	Well suited	Marginal	Suited	Well suited	Well suited.
Game farms (put-and-take shooting)	Well suited	Well suited	Well suited	Not suited	Not suited.

These soils are suitable for producing food and cover for bobwhite (quail), deer, doves, ducks, rabbits, squirrels, and wild turkeys. They also furnish good sites for constructing impounded fishponds.

Bobwhite (quail).—Bicolor lespedeza grows well on these soils and supplies dependable food for quail (fig. 17). Good places for seeding are openings in woods and strips along the edges of fields. Other plants that grow well on these soils and are good food for quail are tickclover, browntop millet, and annual lespedeza.

Woodland that is managed mainly for quail may be improved by carefully controlled burning. Generally, the burning should be only on gentle slopes so as to lessen the erosion hazard caused by the temporary loss of ground cover. Fire is useful in removing duff, and in keeping areas open for shooting by destroying hardwood sprouts.

Deer.—The soils in this group are well suited to grasses and legumes that deer eat. Good foods for deer in winter are white clover, crimson clover, and rescuegrass. Deer fields should be 1 to 5 acres in size. Plantings are made more palatable and attractive if lime and fertilizer are applied.

On the soils in this group, stands of mixed hardwoods are good habitat for deer, and they provide many kinds of native food. Important are acorns, mainly from water oak, and the plant, fruit, or nuts from blackberry, blackgum, grasses, greenbrier, herbs, red maple, switchcane, and white bay. New browse grows in openings made when saw logs and pulpwood are harvested. Oaks that bear a large amount of acorns should not be harvested. If trees that compete with selected oaks are cut, the amount of acorns is increased. The competition of cattle and hogs may reduce the amount of food available for deer.

Figure 17.—Border strip of bicolor lespedeza that has been planted to furnish food for quail.

Doves.—These soils are widely used for corn and soybeans. The waste from these crops makes good food for doves in fall and winter after the fields are hogged down or are harvested with a mechanical harvester.

Excellent dove fields may be established on these soils by planting browntop millet in rows. From 500 to 600 pounds of a 5–10–10[5] fertilizer is needed for good seed production.

Ducks.—Because of topography, the soils in this group are generally unsuitable for duck fields. Also, a source of water that can be used for flooding the fields is generally missing. In a few places some level soils may be diked and managed for ducks. Corn is the best duck food to grow on these soils, but browntop millet is also highly productive. Pumping from a well or another source may be required to flood the planted area during fall and winter.

Rabbits.—The best rabbit hunting in the county is on the soils of this group. Generally, many kinds of native foods are available, and plantings are unnecessary. Because thorny plants are needed for protection from predators, living fences of multiflora rose provide good cover for rabbits.

Squirrels.—Some woodland on these soils is favorable to both gray squirrel and fox squirrel. The number of squirrels depends on the presence of hardwood trees interspersed with pine. Squirrels are seldom found in forests that are predominantly pine. Native squirrel food on the soils of this group are provided by beech, black cherry, dogwood, hickory, pecan, pine, and many kinds of oak trees.

[5] Percentages, respectively, of nitrogen, phosphoric acid, and potash.

Wild turkeys.—The soils of this group are well suited to grasses and legumes that are seeded to furnish food for wild turkeys. As for deer, suitable plants for wild turkeys are white clover, crimson clover, and rescuegrass. Plantings for turkeys should be 1 to 5 acres in size. Grazing fields should be near water, perhaps one-half mile or less. Bahiagrass, planted on firebreaks or on shoulders of access roads in woodland, provides food (seeds) for turkeys in August and September. The woodland on these soils supplies important native foods. From October to March about one-fourth of the food for turkeys consists of acorns. Beechnuts are preferred but generally are not abundant. Dogwood berries supply from 1 to 15 percent of the food from September to April.

Fish.—Some of the best sites for impounded fishponds are in the draws and valleys of the soils of this group. The soils also are good material for dam construction. For satisfactory management, ponds without large watersheds are needed. The amount of food produced for fish is related directly to the fertility of the water and, to some extent, to the soils at the bottom of the pond. Because natural waters are generally low in fertility and the soils at the bottom of the pond tend to be acid, most ponds need to be fertilized and limed. The fertilizer and lime encourage the growth of microsopic algae, which provide food for worms that, in turn, are food for fish. The stocking of ponds with 500 bluegill and 50 bass fingerlings for each surface acre of water generally produces a balanced fish population for good fishing. The stocking rate can be doubled if the pond is fertilized regularly.

WILDLIFE SUITABILITY GROUP 2

Most kinds of wildlife are scarce on the soils in this group because natural food and cover are lacking in many places. Food can be supplied by plantings, but if these plantings are to be successful, large additions of fertilizer are required. For the perennial plants annual applications are needed. The soils are—

Eustis sand, 0 to 6 percent slopes.
Eustis sand, 6 to 10 percent slopes.
Eustis loamy sand, 0 to 6 percent slopes.
Eustis loamy sand, 6 to 10 percent slopes.
Eustis loamy sand, 10 to 15 percent slopes.
Eustis sand, terrace, 0 to 6 percent slopes.
Lakeland sand, moderately shallow, 0 to 2 percent slopes.
Lakeland sand, moderately shallow, 2 to 6 percent slopes.
Lakeland sand, moderately shallow, 6 to 10 percent slopes.
Lakeland sand, moderately shallow, 10 to 15 percent slopes.
Lakeland sand, 0 to 6 percent slopes.
Lakeland sand, 6 to 10 percent slopes.
Lakeland sand, 10 to 15 percent slopes.
Lakeland sand, moderately shallow, terrace, 0 to 4 percent slopes.
Lakeland sand, terrace, 0 to 6 percent slopes.
Norfolk sand, thick surface, 0 to 2 percent slopes.
Norfolk sand, thick surface, 2 to 6 percent slopes.
Norfolk sand, thick surface, 6 to 10 percent slopes.
Vaucluse loamy sand, 6 to 10 percent slopes, eroded.
Vaucluse loamy sand, 15 to 25 percent slopes, eroded.
Vaucluse soils, 10 to 15 percent slopes, eroded.
Vaucluse sand, thick surface, 6 to 10 percent slopes.

The soils in this group are suitable for producing food and cover for bobwhite (quail). They are less suitable as habitat for deer, doves, rabbits, squirrels, and wild turkeys. Sites on these soils are suitable for commercial shooting preserves and for constructing fishponds. Generally, the steep, eroded Vaucluse soils are not suited to any kind of wildlife plantings.

Bobwhite (quail).—Although quail can be produced in large numbers on these soils, much more management is required than on the soils in group 1. Because the soils are droughty, annuals planted to supply quail food are likely to fail 1 year out of 3. Bicolor lespedeza is one of the most dependable perennials, but 0–14–14 fertilizer or the equivalent should be applied every year. On these coarse-textured soils, transplanting bicolor lespedeza is more successful than seeding.

Deer.—These soils are the least desirable in the county for managing to attract deer, but in many large areas other more suitable soils may not be available. Reseeding crimson clover and chufa are the best suited food plants, but the planting sites should be carefully selected.

Doves.—Plantings made especially for doves generally are not suited to these soils, but the doves do eat the seeds of some plants that are cultivated for other purposes. Watermelons are grown on some of these soils, and doves eat the seed from the melons left after harvest to rot. They also eat the seeds of crabgrass.

Ducks.—Although some areas are flat enough for flooding, these soils are too porous to permit the shallow flooding required in duck-field management.

Game farms (put-and-take shooting).—On these soils are excellent sites for commercial shooting preserves where game is regularly released for hunters. Because the soils are permeable, they dry soon after rains, and hunters lose little shooting time. Also, the soils are easy to keep open because plants revegetate slowly. The native stands of wiregrass are good places for releasing birds. A drawback is the difficulty in establishing plantings for release cover, but grain sorghum or sudangrass is successful if large amounts of a complete fertilizer are added. Many pond sites are available for mallard flighting.

Rabbits.—Cover suitable for protecting rabbits from their predators in generally lacking on these soils, but if thorny brush were planted in small areas, possibly the number of rabbits would increase.

Squirrels.—Areas of these soils are not permanent habitat for squirrels, because turkey, blackjack, post, and other sand oaks do not produce a dependable supply of acorns and the pines do not supply mast regularly. Fox squirrels use areas of these soils more than do gray squirrels.

Wild turkeys.—Attempts to manage these soils for turkeys are generally successful only if soils of groups 4 and 5 are within half a mile. On the less droughty soils, chufa or crimson clover can be planted to supply turkey food in winter.

Fish.—On these soils good sites for fishponds occur in draws and valleys where a dependable flow of water will keep the ponds filled. In places, however, material suitable for building a dam is lacking. Also, unless the water is limed, it is likely to be slightly acid or deficient in calcium, and the fish grow slowly. Management for fish should be the same as in wildlife suitability group 1.

WILDLIFE SUITABILITY GROUP 3

The soils in this group are nearly level and wet, but they are highly productive if drained. Unless the better drained areas are carefully selected for wildlife plantings,

some drainage is needed in areas used for wildlife food crops. The soils are—

Dunbar sandy loam.
Dunbar fine sandy loam.
Goldsboro loamy sand.
Goldsboro loamy sand, thick surface.
Izagora sandy loam, sandy substratum.
Local alluvial land.
Lynchburg loamy sand.
Lynchburg loamy fine sand.

These soils are suitable for producing food and cover for bobwhite (quail), deer, doves, ducks, squirrels, and wild turkeys. Some sites are suitable for constructing impounded fishponds.

Bobwhite (quail).—If these soils are adequately drained, they are about as suitable for quail as are the soils in group 1 and should be managed in about the same way. The best place to plant strips of bicolor lespedeza is along or near drainage ditches. In undrained areas, the plants that can be used for quail food are few, but browntop millet and sesbania planted in alternate strips are suitable. The browntop furnishes food early in fall, and the seeds of sesbania drop in winter. In some undrained areas of these soils, quail nesting fails during periods of heavy or prolonged rainfall.

Deer and doves.—In drained areas of these soils, management to attract and support deer and doves is about the same as that on the soils in group 1.

Ducks.—Some excellent sites for duck fields occur in nearly level areas that can be alternately flooded and drained if they are enclosed by a low dike. These areas must be high enough to be drained easily. In these duck fields corn is best suited as duck food, but browntop millet is also productive. Normally, pumping is required to flood the fields during fall and winter, but in some places a reservoir can be built above a field to store water used in flooding.

In some of the lower lying woodland, duckponds can be built so that the woodland is used both to produce wood products and to furnish duck hunting. Such a pond can be built in a wooded draw that is several acres in size and can be flooded with 1 to 15 inches of water if a dike and a water-control structure are built at the lower end. The control is left open during spring and summer so that the draw drains naturally. The enclosed area is flooded only during winter. Flooding the year round kills trees, but flooding only in winter favors the growth of commercial hardwoods. Acorns and beechnuts are choice duck foods, and where the canopy is open, smartweed and panicum furnish additional food. Brushy areas can be cleared and planted to browntop millet or smartweed.

Rabbits.—The number of rabbits on these soils is small to medium. Although suitable food and cover are apparently available, cottontail rabbits do not seem to thrive on these soils.

Squirrels.—The soils in this group do not produce so many kinds of squirrel food as do the soils in group 1. They are, however, managed for squirrels in about the same way as the soils in group 1.

Wild turkeys.—To produce food for wild turkeys, the soils in this group should be managed in about the same way as the soils in group 1.

Fish.—Sites suitable for building fishponds occur in some areas of these soils, but many other sites are not suitable, because their watershed is too large. Ponds constructed on suitable sites can be stocked and managed in about the same way as those constructed on the soils in group 1.

WILDLIFE SUITABILITY GROUP 4

The soils of this group are poorly suited to crops and pasture, and a large acreage has been left as woodland. The soils are wet and are difficult to drain enough to make them suitable for cultivated crops, but many areas can be used for wildlife. The soils are—

Bayboro loam.
Coxville sandy loam.
Coxville fine sandy loam.
Grady loam.
Grady loam, thin surface.
Klej loamy sand.
Klej loamy sand, terrace.
Leaf loamy sand, sandy substratum.
Leaf clay loam, thin surface.
McColl loam.
McColl sandy loam.
Portsmouth sandy loam.
Portsmouth loam.
Wahee sandy loam, sandy substratum.

These soils provide some of the best sites in the county for waterfowl. Uncleared areas that are properly managed are excellent habitat for deer, wild turkeys, and squirrels. The soils, however, are not suitable for quail or rabbits, and generally food for doves is not available. In most places impoundments cannot be made deep enough for fishponds.

Deer.—Naturally occurring important deer foods on the soils in this group are acorns, mainly from water oaks, and the plant, fruit, or seed of blackberry, blackgum, grasses, greenbrier, herbs, red maple, switchcane, and white bay. New browse for deer grows in sunlit openings that are made when saw logs or pulpwood are harvested. Oak trees should not be harvested if they produce large amounts of acorns. The production of acorns can be increased by cutting nearby trees that compete with the selected oaks. On these soils cattle and hogs compete with deer for food.

Ducks.—Some excellent sites for duck fields occur on these soils in areas that can be alternately flooded and drained if they are enclosed by a dike, have a water-control structure, and are high enough to be drained in summer. The field should be kept dry enough in summer to support farm machinery. Browntop millet and Japanese millet are choice foods for ducks and are well suited to these soils. Smartweed, also a choice food for ducks, generally appears naturally if the land and water are managed for it. Cattle do not eat smartweed if they can get other food, but they eat plants that compete with it and thus permit the smartweed to grow and furnish food for ducks. Regardless of the kind of duck food grown, flooding must be shallow for the food to be most attractive. Flooding to a depth of 8 to 12 inches is best.

Good sites for woodland duckponds occur on the soils in group 4. Duckponds on woodland can be established and managed in about the same way as those on the soils in group 3.

Squirrels.—Blackgum, magnolia, and oaks grow on these soils and provide choice food for squirrels during winter. Early in spring squirrels eat the buds and bark of several

kinds of hardwoods. They eat the seeds from maple trees in spring and summer. In wooded areas ample dens are generally available in the holes of old trees. Habitat on the soils of this group is favored more by gray squirrels than by fox squirrels.

Wild geese.—Migrating geese frequently use the duck fields established on the soils of this group.

Wild turkeys.—Many areas of these soils make good wild turkey habitat. To attract and support these turkeys, the soils are managed in the same way as they are managed to attract deer. In winter acorns are important food for turkeys. Panicgrass and paspalum grow in openings made by logging, and are important foods from July to October. The turkeys also eat the grasshoppers and crickets that the panicgrass and paspalum attract. Turkeys like to roost near areas of these soils where water stands much of the time.

WILDLIFE SUITABILITY GROUP 5

The limitations to managing the soils in this group for producing some kinds of wildlife are severe, but habitat favorable for deer, squirrels, and wild turkeys occurs naturally and can be improved. Planting crops for wildlife food is seldom successful unless there has been extensive diking and drainage. Consequently, about the only management practiced, except that for ducks, is management for improving the native vegetation. The soils are—

Mixed alluvial land.
Myatt loamy sand.
Okenee loam.
Plummer loamy sand.
Rains loamy sand.
Rutlege loamy sand.
Swamp.

The soils in this group are not suited to bobwhite (quail), doves, and rabbits, and management that favors ducks or fish is difficult. Deer, squirrels, and wild turkeys find attractive habitat on these soils.

Deer.—The soils of this group produce the same kinds of naturally occurring foods for deer as do the soils in group 4. Both groups of soils are managed in the same way.

Ducks.—Because water is difficult to control on the soils of this group, few places are suitable for developing duck fields. Suitable outlets are not available, and many areas cannot be drained enough for duck food to be planted. In those areas that do have outlets, these soils can be diked, planted, and managed in the same way as the soils in group 4. Woodland sites that cannot be drained enough for planting can be used as duckponds.

Squirrels.—These soils provide the same choice foods for squirrels as do the soils in group 4 and are managed in the same way.

Wild turkeys.—These soils provide wild turkeys with the same kinds of food and cover as do the soils in group 4 and are managed in the same way.

Fish.—Few sites on these soils are suitable for constructing fishponds. In most places the ponds that have been constructed are shallow and are overgrown with pondweed, or their watershed is large and unmanageable. Although there are some sites where ponds could be dug to supply irrigation water, the ponds would likely be flooded by water from adjacent areas. This flooding brings in rough fish and permits stocked fish to escape.

Engineering Applications [6]

Soil engineering is well established today. In a broad sense it is a subdivision of structural engineering, for it deals with the soils used as the foundation material upon which structures rest or with the soil used as structural material. To the engineer, soils are natural materials that occur in great variety on the surface of the earth. Properties of soils that affect engineering may vary widely from place to place, even within the small area of a single project. Normally, soils are used in the same general locality and in the condition that they are found. A large part of soil engineering consists of locating the various soils, of determining their engineering properties, of correlating those properties with the requirements of the job, and of selecting the best material for each job.

This soil survey report contains information about the soils in Bamberg County that will help engineers. This subsection emphasizes properties of soils related to agricultural engineering, especially properties affecting irrigation, farm ponds, and structures that control and conserve soil and water. Of special interest to engineers are permeability of the soils, shear strength, compaction characteristics, texture, plasticity, the depth to unconsolidated material, and topography.

The information in this report can be used to—

1. Make soil and land use studies that will aid in selecting and developing industrial, business, residential, and recreational sites.
2. Make estimates of the engineering properties of the soil to aid in planning agricultural drainage systems, farm ponds, irrigation systems, and diversion terraces.
3. Make preliminary evaluations of soil and ground conditions that will aid in selecting sites for highways, airports, and pipelines and in planning detailed investigations at the selected locations.
4. Locate probable sources of sand, gravel, and other construction materials.
5. Determine the suitability of the soils for supporting vehicles and construction equipment that move across them.
6. Correlate performance of structures with soil mapping units and thus develop information that is useful in designing and maintaining the structures.
7. Supplement information obtained from other published maps and reports and from aerial photographs for the purpose of making maps and reports that can be used readily by engineers.
8. Develop other preliminary estimates for construction purposes pertinent to the area.

This report will not eliminate the need for on-site sampling and testing of soils for the design and construction of specific engineering works and uses. The interpretations in the report should be used primarily in planning more detailed field investigations to determine the condition of the soil material at a proposed site.

Much of the information in this subsection is in tables 8, 9, and 10. The text of the subsection describes some practices of conservation engineering that apply in Bamberg County. Additional information that is helpful to engineers can be found in the sections "Descriptions of the Soils" and "Formation and Classification of Soils." Some terms used by agricultural soil scientists may be unfamiliar to engineers, and other terms may have a special meaning in soil science. Unless otherwise specified, the Glossary defines terms in their agricultural sense.

[6] HOWARD E. MORRISON, conservation engineer, Soil Conservation Service, Orangeburg, S.C., assisted in preparing this subsection.

TABLE 8.—*Engineering*

[Tests performed by Bureau of Public Roads (BPR) in accordance with standard

Soil name and location	Parent material	BPR report number	Depth	Horizon
			Inches	
Dunbar sandy loam:				
6 miles SW. of Bamberg and 1½ miles E. of U.S. Highway No. 301. (Modal)	Sandy clay marine sediments.	S–39469	0–7	Ap
		S–39470	15–26	B22
		S–39471	41–67+	Cg
Faceville loamy sand:				
5 miles NW. of Bamberg and 75 feet E. of the road. (C horizon at 76 inches)	Sand and clay marine sediments.	S–39472	0–10	Ap
		S–39473	12–23	B21
		S–39474	76+	C
Grady loam:				
0.5 mile W. of Bamberg and 50 feet S. of U.S. Highway No. 78 in a Carolina bay. (Modal)	Sand and clay marine sediments.	S–39475	0–6	A1
		S–39476	13–30	B2g
		S–39477	30–50+	Cg
Lynchburg loamy sand:				
13 miles SE. of Bamberg and 0.5 mile W. of blacktop road. (Modal)	Sandy clay loam marine sediments.	S–39478	0–6	Ap
		S–39479	14–23	B2g
		S–39480	51–63+	Cg
Ruston loamy sand:				
7 miles E. of Bamberg and 30 yards S. of U.S. Highway No. 78. (Modal)	Sand and clay marine sediments.	S–39481	0–7	Ap
		S–39482	14–26	B21
		S–39483	41 +	C

[1] Mechanical analysis according to the AASHO Designation T 88–57 (*1*). Results by this procedure may differ somewhat from results obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHO procedure, the fine material is analyzed by the hydrometer method, and the various grain-size fractions are calculated on the basis of all the material, including that coarser than 2 millimeters in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipette method and the material coarser

TABLE 9.—*Brief description of soils and their*

[Absence of data indicates

Map symbol	Soil	Depth to seasonally high water table	Description of soil and site	Depth from surface
		Feet		*Inches*
Ba	Bayboro loam (0 to 2 percent slopes).	0	10 to 20 inches of poorly drained loam over 20 to 35 inches of silty clay derived from marine deposits.	0–11 11–39
CaB CaB2 CaC2	Caroline loamy sand, 2 to 6 percent slopes. Caroline loamy sand, 2 to 6 percent slopes, eroded. Caroline loamy sand, 6 to 10 percent slopes, eroded.	5+	3 to 14 inches of well-drained loamy sand or sandy loam over 20 to 36 inches of sandy clay derived from marine deposits.	0–7 7–28
Co Cf	Coxville sandy loam (0 to 2 percent slopes). Coxville fine sandy loam (0 to 2 percent slopes).	0	5 to 14 inches of poorly drained sandy loam over 24 to 40 inches of sandy clay derived from marine deposits.	0–12 12–49
Dn Db	Dunbar sandy loam (0 to 2 percent slopes). Dunbar fine sandy loam (0 to 2 percent slopes).	1½	7 to 15 inches of somewhat poorly drained sandy loam over 24 to 40 inches of sandy clay derived from marine deposits.	0–9 9–41

test data

procedures of the American Association of State Highway Officials (AASHO) (*1*)]

Mechanical analysis [1]							Liquid limit	Plasticity index	Classification	
Percentage passingage sieve—			Percentage smaller than—						AASHO	Unified [2]
No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)	0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.				
100	91	31	26	16	8	4	[3]	[3]	A–2–4(0)-----	SM.
100	93	51	46	39	33	31	36	19	A–6(6)-------	CL.
100	89	58	55	59	47	45	59	34	A–7–6(15)----	CH.
100	76	17	14	11	6	5	[3]	[3]	A–2–4(0)-----	SM.
100	84	48	45	40	36	36	39	22	A–6(7)-------	SC.
100	83	52	48	45	40	39	54	26	A–7–6(10)----	MH–CH.
100	89	35	31	26	21	17	26	8	A–2–4(0)-	SC.
100	87	46	44	40	35	33	44	26	A–7–6(7)-----	SC.
100	83	42	40	38	36	36	50	31	A–7–6(7)-----	SC.
100	75	20	17	14	10	6	[3]	[3]	A–2–4(0)-----	SM.
100	71	24	22	19	14	11	17	3	A–2–4(0)-----	SM.
100	69	23	21	18	14	12	20	6	A–2–4(0)-----	SM–SC.
100	75	14	11	9	7	4	[3]	[3]	A–2–4(0)-----	SM.
100	76	36	33	31	25	24	33	17	A–6(2)-------	SC.
100	81	37	36	35	32	31	43	24	A 7–6(3)-----	SC.

than 2 millimeters in diameter is excluded from calculation of grain-size fractions. The mechanical analyses used in this table are not suitable for use in naming textural classes for soils.

[2] SCS and BPR have agreed to consider that all soils having plasticity indexes within two points from A-line are to be given a borderline classification. Examples of borderline classification obtained by this use are MH–CH and SM–SC.

[3] Nonplastic.

estimated physical and chemical properties

variable properties]

Classification			Percentage passing sieve—		Permeability	Available water capacity	Reaction	Shrink-swell potential
USDA texture	Unified	AASHO	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)				
					Inches per hour	*Inches per inch of soil*	*pH*	
Loam----------	ML or CL----	A–4 to A–6---	100	50–60	0. 80–2. 50	0. 10	5. 5–5. 9	Moderate to high.
Sandy clay to silty clay.	SC to CH----	A–6 or A 7---	100	45–55	0. 05–0. 20	0. 13	4. 7–4. 9	Moderate to high.
Loamy sand----------	SM----------	A–2----------	100	15–25	5. 0–10. 00	0. 09	5. 8–6. 2	Low.
Sandy clay----------	SC to CH----	A–6 or A–7---	100	40–60	0. 05–0. 20	0. 11	5. 0–5. 2	Moderate to high.
Sandy loam----------	SM to SC----	A–2 to A–4---	100	40–50	0. 80–2. 50	0. 13	4. 6–5. 0	Low.
Sandy clay----------	SC or CL-----	A–6 to A–7-	100	40–55	0. 20–0. 80	0. 12	4. 5–5. 0	Moderate.
Sandy loam to fine sandy loam.	SM or SC----	A–2 to A–4---	100	30–40	0. 80–2. 50	0. 10	5. 0–5. 5	Low.
Sandy clay----------	SC to CH----	A–6 or A–7---	100	40–60	0. 05–0. 20	0. 10	5. 0–5. 5	Moderate to high.

TABLE 9.—*Brief description of soils and their*

Map symbol	Soil	Depth to seasonally high water table	Description of soil and site	Depth from surface
		Feet		*Inches*
EmB EmC EmD	Eustis loamy sand, 0 to 6 percent slopes. Eustis loamy sand, 6 to 10 percent slopes. Eustis loamy sand, 10 to 15 percent slopes.	5+	30 to 75 inches of loose, excessively drained sand or loamy sand derived from beds of unconsolidated sands.	0–53
EsB EsC EtB	Eustis sand, 0 to 6 percent slopes. Eustis sand, 6 to 10 percent slopes. Eustis sand, terrace, 0 to 6 percent slopes.	5+	30 to 75 inches of loose, excessively drained sand or loamy sand derived from beds of unconsolidated sands.	0–75
FaB FaB2 FaC2	Faceville loamy sand, 2 to 6 percent slopes. Faceville loamy sand, 2 to 6 percent slopes, eroded. Faceville loamy sand, 6 to 10 percent slopes, eroded.	5+	3 to 14 inches of well-drained loamy sand to sandy clay loam over 24 to 60 inches of sandy clay derived from marine deposits.	0–10 10–61
GaB	Gilead loamy sand, 2 to 6 percent slopes.	3½+	8 to 14 inches of well-drained loamy sand over 12 to 20 inches of compact to slightly cemented sandy clay derived from marine deposits.	0–10 10–26
Gb Gk	Goldsboro loamy sand (0 to 2 percent slopes). Goldsboro loamy sand, thick surface (0 to 2 percent slopes).	2½	10 to 18 inches of moderately well drained loamy sand over 20 to 34 inches of sandy clay loam derived from marine deposits.	0–15 15–36
Gr Gt	Grady loam (0 to 2 percent slopes). Grady loam, thin surface (0 to 2 percent slopes).	0	3 to 8 inches of poorly drained loam over 20 to 30 inches of sandy clay and clay derived from marine deposits.	0–7 7–36
Ig	Izagora sandy loam, sandy substratum.	1½	7 to 12 inches of moderately well drained sandy loam over 18 to 24 inches of sandy clay loam derived from beds of unconsolidated sands and clays deposited by streams.	0–11 11–32 32+
Ka	Kalmia loamy sand (0 to 2 percent slopes).	3	8 to 18 inches of well-drained loamy sand over 24 to 32 inches of sandy clay loam to sandy loam derived from beds of unconsolidated sands and clays deposited by streams.	0–16 16–41 41+
Km Kt	Klej loamy sand (0 to 2 percent slopes). Klej loamy sand, terrace (0 to 2 percent slopes).	1	30 to 45 inches of somewhat poorly drained loamy sand derived from marine deposits.	0–36
LdA LdB LdC LdD LkB LlB LaB LaC LaD	Lakeland sand, moderately shallow, 0 to 2 percent slopes. Lakeland sand, moderately shallow, 2 to 6 percent slopes. Lakeland sand, moderately shallow, 6 to 10 percent slopes. Lakeland sand, moderately shallow, 10 to 15 percent slopes. Lakeland sand, moderately shallow, terrace, 0 to 4 percent slopes. Lakeland sand, terrace, 0 to 6 percent slopes. Lakeland sand, 0 to 6 percent slopes. Lakeland sand, 6 to 10 percent slopes. Lakeland sand, 10 to 15 percent slopes.	5+	30 to 72 inches of excessively drained sand derived from beds of unconsolidated sands.	0–30 30–72+
Ln	Leaf loamy sand, sandy substratum (0 to 2 percent slopes).	½	2 to 8 inches of poorly drained loamy sand or clay loam over 24 to 40 inches of sandy clay to clay derived from stream deposits.	0–5 5–27 27+
Lm	Leaf clay loam, thin surface (0 to 2 percent slopes).	½	2 to 8 inches of poorly drained loamy sand or clay loam over 24 to 40 inches of sandy clay to clay derived from stream deposits.	0–2 2–45 45+

[1] Less than 0.05 inch.

estimated physical and chemical properties—Continued

Classification			Percentage passing sieve—		Permeability	Available water capacity	Reaction	Shrink-swell potential
USDA texture	Unified	AASHO	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)	*Inches per hour*	*Inches per inch of soil*	*pH*	
Loamy sand	SP or SM	A-2 or A-3	100	5–15	10.00+	0.06	4.9–5.2	Low.
Sand	SP or SM	A-2 or A-3	100	5–10	10.00+	0.06	5.1–5.5	Low.
Loamy sand to sandy clay loam.	SM or SC	A-2	100	15–20	10.00+	0.07	5.5–6.0	Low.
Sandy clay to sandy clay loam.	SC to CH	A-6 or A-7	100	45–60	0.80–2.50	0.10	5.5–6.0	Moderate to high.
Loamy sand	SM	A-2	100	15–25	10.00+	0.06	5.6–6.0	Low.
Sandy clay to sandy clay loam.	SC to CH	A-6 or A-7	100	45–60	10.00+	0.10	5.0–6.0	Moderate to high.
Loamy sand	SM	A-2	100	10–25	10.00+	0.07	5.6–6.0	Low.
Sandy clay loam	SC or CL	A-4 to A-6	100	40–65	0.20–0.80	0.10	5.1–5.5	Moderate.
Loam to sandy loam	SM or SC	A-2 to A-4	100	25–40	0.80–2.50	0.10	5.1–5.5	Low to moderate.
Sandy clay	SC	A-6 or A-7	100	40 50	0.05–0.20	0.14	5.0–6.0	Moderate.
Sandy loam	SM or SC	A-2	100	25–35	0.80–2.50	0.08	5.2–5.8	Low.
Sandy clay loam	SC	A-6	100	20–40	0.80–2.50	0.10	4.5–5.0	Moderate to low.
Sand	SP or SM	A-2 or A-3	100	5–12	10.00 +	0.06	4.5–5.0	Low.
Loamy sand	SM	A-2	100	10–25	5.00–10.00	0.06	5.5–6.0	Low.
Sandy clay loam to sandy loam.	SM to CL	A-4 to A-6	100	45–65	0.80–2.50	0.10	5.5–6.0	Moderate.
Sand	SP	A-3	100	3–5	10.00+	0.06	4.5–5.5	Low.
Loamy sand	SM	A-2	100	10–25	5.00–10.00	0.08	5.6–6.0	Low.
Sand	SP to SM	A-2 or A-3	100	5–15	10.00+	0.06	5.3–5.8	Low.
Sandy clay loam to loamy sand.	SM or SC	A-2	100	10–35	5.0–10.0	0.06	5.0–5.4	Low.
Loamy sand	SM	A-2	100	10–25	5.00–10.00	0.07	4.5–5.0	Low.
Sandy clay to clay	SC to CH	A 6 or A-7	100	45–65	0.05–0.20	0.13	4.5–5.0	Moderate to high.
Sand	SP	A-3	100	0–5	10.00+	0.06	4.5–5.0	Low.
Sandy clay	SC	A 6 or A-7	100	35–50	0.80–2.50	0.12	4.5–5.0	Moderate.
Clay	CL to CH	A-7	100	55–70	(1)	0.14	4.5–5.0	Moderate to high.
Sand	SP	A-3	100	0–5	10.00+	0.06	4.5–5.0	Low.

TABLE 9.—*Brief description of soils and their*

Map symbol	Soil	Depth to seasonally high water table	Description of soil and site	Depth from surface
		Feet		*Inches*
Lo	Local alluvial land (0 to 2 percent slopes).	2½	Variable; 18 to 40 inches or more of well-drained to somewhat poorly drained loamy sand to loam over variable soil material derived from local alluvial and colluvial deposits.	0–40
Ly	Lynchburg loamy sand (0 to 2 percent slopes).	1	10 to 30 inches of somewhat poorly drained loamy sand over 18 to 36 inches of sandy clay loam to sandy loam derived from marine deposits.	0–14
Ls	Lynchburg loamy fine sand (0 to 2 percent slopes).			14–41
MaB	Magnolia loamy sand, 2 to 6 percent slopes.	5+	3 to 10 inches of well-drained loamy sand to sandy clay loam over 32 to 80 inches of sandy clay to sandy clay loam derived from marine deposits.	0 7
MaB2	Magnolia loamy sand, 2 to 6 percent slopes, eroded.			7–84
MaC2	Magnolia loamy sand, 6 to 10 percent slopes, eroded.			
MbA	Marlboro loamy sand, 0 to 2 percent slopes.	5+	3 to 14 inches of well-drained loamy sand to sandy clay loam over 30 to 60 inches of sandy clay to sandy clay loam derived from marine deposits.	0–7
MbB	Marlboro loamy sand, 2 to 6 percent slopes.			7–73
MbB2	Marboro loamy sand, 2 to 6 percent slopes, eroded.			
MbC2	Marlboro loamy sand, 6 to 10 percent slopes, eroded.			
Mc	McColl loam (0 to 2 percent slopes).	0	5 to 8 inches of poorly drained and somewhat poorly drained loam to sandy loam over 16 to 30 inches of sandy clay to clay derived from marine deposits.	0–6
Md	McColl sandy loam (0 to 2 percent slopes).			6–28
				28+
Mn	Mixed alluvial land (0 to 2 percent slopes).	0	Mixed, poorly drained and somewhat poorly drained sand to silty clay derived from local alluvium.	------
My	Myatt loamy sand (0 to 2 percent slopes).	0	8 to 18 inches of poorly drained loamy sand over 16 to 30 inches of sandy clay loam derived from beds of unconsolidated loamy sand and sandy clay loam deposited by streams on the stream terraces.	0–9
				9–28
				28+
NfA	Norfolk loamy fine sand, 0 to 2 percent slopes.	4+	4 to 18 inches of well-drained loamy sand over 24 to 42 inches of sandy clay loam derived from marine deposits.	0–16
NfB	Norfolk loamy fine sand, 2 to 6 percent slopes.			16–54
NoA	Norfolk loamy sand, 0 to 2 percent slopes.			
NoB	Norfolk loamy sand, 2 to 6 percent slopes.			
NoB2	Norfolk loamy sand, 2 to 6 percent slopes, eroded.			
NoC2	Norfolk loamy sand, 6 to 10 percent slopes, eroded.			
NkA	Norfolk loamy fine sand, thick surface, 0 to 2 percent slopes.	4+	19 to 30 inches of somewhat excessively drained sand and loamy sand over 12 to 30 inches of sandy clay loam or sandy loam derived from marine deposits.	0–27
NkB	Norfolk loamy fine sand, thick surface, 2 to 6 percent slopes.			27–50
NsA	Norfolk sand, thick surface, 0 to 2 percent slopes.			
NsB	Norfolk sand, thick surface, 2 to 6 percent slopes.			
NsC	Norfolk sand, thick surface, 6 to 10 percent slopes.			
Ok	Okenee loam (0 to 2 percent slopes).	0	8 to 20 inches of very poorly drained organic loam over 8 to 34 inches of sandy clay loam and sandy clay underlain by sand derived from Coastal Plain alluvium on the stream terraces.	0 10
				10–26
				26–34
				34+

estimated physical and chemical properties—Continued

Classification			Percentage passing sieve—		Permeability	Available water capacity	Reaction	Shrink-swell potential
USDA texture	Unified	AASHO	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)	*Inches per hour*	*Inches per inch of soil*	*pH*	
Loamy sand to loam								
Loamy sand	SM	A-2	100	10–25	5.0–10.00	0.07	5.0–5.5	Low.
Sandy clay loam to sandy loam.	SM to SC	A-2 to A-4	100	20–40	0.80–2.50	0.10	4.8–5.3	Low to moderate.
Loamy sand to sandy clay loam.	SM to SC	A-2 to A-4	100	25–35	2.50–5.00	0.06	5.9–6.1	Low to moderate.
Sandy clay to sandy clay loam.	SC to CH	A-4 to A-7	100	40–60	0.80–2.50	0.10	5.8–6.1	Moderate to high.
Loamy sand to sandy clay loam.	SM to SC	A-2	100	15 30	2.50–5.00	0.06	5.6–6.0	Low to moderate.
Sandy clay to sandy clay loam.	SC–CL	A-4 to A-6	100	40–70	0.20 0.80	0.12	5.5–5.8	Moderate.
Loam to sandy loam	SM or ML	A-4 to A-6	100	35–50	0.80–2.50	0.10	4.5–5.0	Low to moderate.
Sandy clay to clay	CL to CH	A-6 or A 7	100	50–65	0.05–0.20	0.14	4.5–5.0	High.
			100	15–65			4.5–6.5	Low to moderate.
Sand to silty clay								
Loamy sand	SM	A-2	100	15–25	5.00–10.00	0.08	4.5–5.0	Low.
Sandy clay loam	SM to CL	A-4 to A-6	100	40–60	0.20–2.50	0.10	5.0–5.3	Moderate.
Sand	SP–SM	A-2	100	5–12	10.00+	0.06	4.5–5.0	Low.
Loamy sand to sandy loam.	SP–SM to SC.	A-2	100	10–30	10.00+	0.07	5.6–6.0	Low.
Sandy clay loam	SM to SC	A-4 to A-7	100	35–45	0.80 2.50	0.11	5.6–6.8	Moderate.
Sand to loamy sand	SP–SM	A-2	100	5–12+	10.00+	0.06	5.6–5.8	Low.
Sandy loam to sandy clay loam.	SM or SC	A-4 to A-6	100	35–45	0.80–2.50	0.11	5.6–6.8	Moderate.
Loam	Pt		100	35 65	0.80–2.50	0.11	4.3–4.8	Moderate.
Sandy loam to loamy sand.	SM or SC	A-2	100	15–30	0.80–2.50	0.08	4.3–4.8	Low.
Sandy clay	CL to CH	A-6 or A-7	100	55–65	0.05–0.20	0.15	4.3–4.8	High.
Sand	SP	A-3	100	0–5	10.00+	0.06	5.1–5.5	Low.

TABLE 9.—*Brief description of soils and their*

Map symbol	Soil	Depth to seasonally high water table	Description of soil and site	Depth from surface
		Feet		*Inches*
OrA	Orangeburg loamy sand, 0 to 2 percent slopes.	5+	4 to 18 inches of well-drained sand to sandy loam over 30 to 60 inches of sandy clay loam derived from marine deposits.	0–14
OrB	Orangeburg loamy sand, 2 to 6 percent slopes.			14–67
OrB2	Orangeburg loamy sand, 2 to 6 percent slopes, eroded.			
OrC2	Orangeburg loamy sand, 6 to 10 percent slopes, eroded.			
Pm	Plummer loamy sand (0 to 2 percent slopes).	0	30 inches or more of poorly drained loamy sand or sand over a variable layer of sand to sandy clay derived from marine deposits.	0–9 9–50
Pr	Portsmouth sandy loam (0 to 2 percent slopes).	0	7 to 20 inches of very poorly drained loam or sandy loam over 20 to 40 inches of clay to sandy clay loam derived from marine deposits.	0–10
Po	Portsmouth loam (0 to 2 percent slopes).			10–44
Ra	Rains loamy sand (0 to 2 percent slopes).	0	10 to 18 inches of poorly drained loamy sand or sandy loam over 24 to 36 inches of sandy clay loam to sandy loam derived from marine deposits.	0–15 15–55
RmA	Ruston loamy sand, 0 to 2 percent slopes.	5+	4 to 18 inches of well-drained loamy sand over 24 to 42 inches of sandy clay loam derived from marine sediments.	0–7
RmB	Ruston loamy sand, 2 to 6 percent slopes.			7–41
RmC	Ruston loamy sand, 6 to 10 percent slopes.			
RmB2	Ruston loamy sand, 2 to 6 percent slopes, eroded.			
RmC2	Ruston loamy sand, 6 to 10 percent slopes, eroded.			
RsA	Ruston loamy sand, thick surface, 0 to 2 percent slopes.	5+	19 to 30 inches of somewhat excessively drained loamy sand over 12 to 24 inches of sandy loam to sandy clay loam derived from marine sediments.	0–25
RsB	Ruston loamy sand, thick surface, 2 to 6 percent slopes.			25–46
RsC	Ruston loamy sand, thick surface, 6 to 10 percent slopes.			
Ru	Rutlege loamy sand (0 to 2 percent slopes).	0	30 inches or more of very poorly drained loamy sand or sand over a variable layer of sand to sandy clay derived from marine deposits.	0–36 36+
Sw	Swamp (0 to 2 percent slopes).	0	Variable; poorly drained and flooded stream bottoms derived from sands, silts, and clays washed from the Coastal Plains.	-------
VaC2	Vaucluse loamy sand, 6 to 10 percent slopes, eroded.	5+	3 to 18 inches of well-drained loamy sand over 0 to 20 inches of slightly cemented, firm sandy clay loam derived from marine sediments.	0–9 9–19
VsD2	Vaucluse soils, 10 to 15 percent slopes, eroded.			
VaE2	Vaucluse loamy sand, 15 to 25 percent slopes, eroded.			
VcC	Vaucluse sand, thick surface, 6 to 10 percent slopes.	5+	19 to 30 inches of somewhat excessively drained sand over 0 to 12 inches of slightly cemented, firm sandy clay loam derived from marine deposits.	19–30 30–42
Wa	Wahee sandy loam, sandy substratum (0 to 2 percent slopes).	1	6 to 10 inches of somewhat poorly drained or moderately well drained sandy loam over 20 to 36 inches of mottled clay to sandy clay derived from materials deposited by streams.	0–7 7–28 28+

estimated physical and chemical properties—Continued

Classification			Percentage passing sieve—		Permeability	Available water capacity	Reaction	Shrink-swell potential
USDA texture	Unified	AASHO	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)				
					Inches per hour	*Inches per inch of soil*	*pH*	
Loamy sand to sandy loam.	SM or SC	A-2	100	20–30	2. 50–5. 00	0. 07	5. 3–5. 8	Low.
Sandy clay loam	CL	A 4 to A-6	100	50–60	0. 80–2. 50	0. 11	5. 3–5. 8	Moderate.
Loamy sand	SM	A-2	100	15–25	5. 00–10. 00	0. 06	5. 1–5. 5	Low.
Sand to loamy sand	SM	A-2 or A-3	100	5–30	5. 00–10. 00	0. 06	5. 1–5. 5	Low.
Loam or sandy loam	SM to ML Pt.	A-4 to A-6	100	35–55	0. 80–2. 50	0. 10	5. 5–5. 9	Moderate.
Sandy clay to sandy clay loam.	SM or SC	A-4 or A 6	100	40–50	0. 20–2. 50	0. 14	4. 7–4. 9	Moderate.
Loamy sand or sandy loam.	SM or SC	A-2 or A-4	100	30–40	2. 50–5. 00	0. 08	4. 8–5. 5	Low.
Sandy clay loam to sandy loam.	SM or SC	A-4 to A-6	100	40–50	0. 80–2. 50	0. 11	4. 8–5. 2	Low to moderate.
Loamy sand to sandy loam.	SM	A-2	100	10–30	10. 00+	0. 07	5. 6–6. 0	Low.
Sandy clay loam	SC	A-6 or A-7	100	35–45	0. 80–2. 50	0. 11	5. 6–6. 0	Moderate.
Loamy sand	SM	A-2	100	10–20	10. 00+	0. 07	5. 6–6. 0	Low.
Sandy clay loam to sandy loam.	SC or SM	A-2, A-4, or A-6.	100	30–40	0. 80–2. 50	0. 11	5. 3–5. 7	Low to moderate.
Loamy sand to sand	SM	A-2	100	10–25	10. 00+	0. 07	4. 6–5. 5	Low.
Sand to loamy sand	SP or SM	A-2	100	10–25	10. 00+	0. 07	4. 6–5. 5	Low.
Sand to clay								
Loamy sand	SM	A-2	100	15–25	5. 00–10. 00	0. 07	5. 5–5. 8	Low.
Sandy clay loam	SC	A-4 to A-7	100	35–50	0. 05 0. 20	0. 08	5. 1–5. 5	Moderate.
Sand	SP or SM	A-2 or A-3	100	7–20	10. 00+	0. 06	5. 5–5. 8	Low.
Sandy clay loam	SC	A-4 to A-7	100	35–50	0. 05–0. 20	0. 09	5. 1–5. 5	Moderate.
Sandy loam	SM or SC	A-4 to A-6	100	30–40	0. 20–0. 80	0. 11	4. 5–5. 0	Low.
Clay to sandy clay	ML to CH	A-6 or A-7	100	50–70	0. 05–0. 20	0. 13	5. 1–5. 5	Moderate to high.
Sand	SP	A-3	100	0–5	10. 00+	0. 06	4. 5–5. 0	Low.

TABLE 10.—*Interpretation of*

Soils and map symbols [1]	Suitability for grading in winter and in wet weather	Suitability as a source of—				Limitations for septic disposal fields
		Topsoil	Sand	Road subgrade	Road fill	
Bayboro (Ba)	Poor	Poor	Unsuitable	Unsuitable	Unsuitable	Severe; slowly permeable subsoil; high water table much of the time.
Caroline (CaB, CaB2, CaC2).	Poor	Fair to good in surface layer.	Poor; poorly graded sand in surface layer.	Fair	Fair	Moderate
Coxville (Cf, Co)	Poor; high water table.	Very good in surface layer.	Unsuitable	Poor	Poor	Severe; very slowly permeable subsoil; high water table.
Dunbar (Db, Dn)	Fair	Good to fair	Poor; poorly graded sand in surface layer.	Poor to fair	Poor to fair	Moderate; slowly permeable subsoil; high water table some of the time.
Eustis (EmB, EmC, EmD, EsB, EsC, EtB).	Good	Poor	Poor; deep, poorly graded fine sand.	Poor; good if confined.	Fair; erodible	Slight
Faceville (FaB, FaB2, FaC2).	Fair to good	Good	Poor; poorly graded sand in surface layer.	Fair	Fair to good	Slight
Gilead (GaB)	Good to fair	Fair to poor	Poor; poorly graded sand in surface layer.	Fair to good	Fair to good on gentle slopes.	Moderate; slowly permeable subsoil.
Goldsboro (Gb, Gk)	Fair	Fair	Poor; poorly graded sand in surface layer.	Fair to good above 2½ feet; poor below.	Fair	Moderate; internal drainage somewhat impeded.
Grady (Gr, Gt)	Poor; high water table.	Fair to poor.	Unsuitable	Poor	Poor	Severe; high water table.
Izagora (Ig)	Fair to poor	Good	Poor; poorly graded sand in surface layer; fair below 3 feet.	Fair	Fair	Moderate; high water table part of the time.
Kalmia (Ka)	Good	Good	Poor; poorly graded fine sand in surface layer; fair below 3 to 4 feet.	Good to fair	Good to fair	Slight or moderate
Klej (Km, Kt)	Fair to poor	Fair to good.	Poor; poorly graded fine sand.	Fair	Fair	Severe; high water table much of the time.
Lakeland (LaB, LaC, LaD, LdA, LdB, LdC, LdD, LkB, LlB).	Good	Poor	Poor; deep, poorly graded sand.	Poor; good if confined.	Fair on gentle slopes.	Slight
Leaf (Lm, Ln)	Poor	Poor	Unsuitable	Poor above 2 to 4 feet; fair below.	Poor above 2 to 4 feet; fair below.	Severe; slow permeability; seasonally high water table.

See footnote at end of table.

engineering properties of the soils

Soil features affecting—					
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways
Reservoir area	Embankment				
Slow seepage in subsoil.	Low strength and stability; moderately slow permeability.	Seasonally high water table; slowly permeable subsoil; runoff from higher areas.	Moderate infiltration and medium water-holding capacity.	Not needed	Not needed.
Slow seepage in subsoil.	Low strength and stability; slow permeability.	Not needed	Slow infiltration and medium water-holding capacity.	Highly erodible	Highly erodible.
Slow seepage in subsoil.	Moderate strength and stability; slow permeability.	Seasonally high water table and slow permeability.	Slow infiltration and medium water-holding capacity.	Not needed	No hazard.
Slow seepage in subsoil.	Moderate strength and stability; moderately slow permeability.	Seasonally high water table and moderately slow to slow permeability.	Moderate infiltration and medium water-holding capacity.	Not needed	No hazard.
Excessive seepage	Low strength and stability; very rapid permeability.	Not needed	Rapid infiltration and low water-holding capacity.	Erodible where sloping.	Erodible and droughty; low fertility.
Moderately slow seepage in subsoil.	Moderate to high strength and stability; moderately slow permeability.	Not needed	Moderate infiltration and medium water-holding capacity.	Erodible where sloping.	Erodible where sloping.
Slow seepage in subsoil.	Moderate to high strength and stability; slow permeability.	Hillside seepage; seasonally high water table along natural drains.	Moderate infiltration and moderate water-holding capacity.	Highly erodible where sloping.	Highly erodible where sloping.
Moderate seepage in subsoil.	Moderate to high strength and stability; moderate permeability in subsoil.	Natural drainage fairly adequate for most crops; moderate permeability.	Moderate to rapid infiltration and medium water-holding capacity.	Not needed	No hazard.
Slow seepage in subsoil.	Moderate strength and stability; slow permeability.	Seasonally high water table; internal drainage needed.	Moderately slow infiltration and medium water-holding capacity.	Not needed	No hazard.
Moderate seepage in subsoil; sandy substratum below 30 to 45 inches.	Moderate strength and stability; moderately slow permeability.	Moderately slow permeability.	Moderately slow infiltration and medium water-holding capacity.	Not needed	No hazard.
Moderate seepage in subsoil; sandy substratum below 35 to 45 inches.	Moderate to high strength and stability; moderately rapid permeability.	Not needed	Moderately rapid infiltration and low to medium water-holding capacity.	Not needed	No hazard.
Excessive seepage	Low to moderate strength and stability; rapid permeability.	Seasonally high water table and rapid permeability.	High infiltration and low water-holding capacity.	Not needed	No hazard.
Excessive seepage	Low to moderate strength and stability; very rapid permeability.	Not needed	Rapid to very rapid infiltration and low water-holding capacity.	Erodible where sloping.	Erodible where sloping; droughty; low fertility.
Slow seepage in subsoil; sandy substratum below 24 to 42 inches.	Moderate strength and stability; slow permeability.	Slow permeability	Slow infiltration and medium water-holding capacity.	Not needed	No hazard.

TABLE 10.—*Interpretation of*

Soils and map symbols [1]	Suitability for grading in winter and in wet weather	Suitability as a source of—				Limitations for septic disposal fields
		Topsoil	Sand	Road subgrade	Road fill	
Local alluvial land (Lo)	Poor	Variable but fair in most places.	Unsuitable	Poor to fair	Poor to fair	Severe; wet
Lynchburg (Ls, Ly)	Poor; high water table.	Good	Unsuitable	Good to fair	Good to fair	Severe; high water table at times.
Magnolia (MaB, MaB2, MaC2).	Good	Good	Poor; poorly graded fine sand in surface layer.	Fair to good	Fair to good	Slight or moderate
Marlboro (MbA, MbB, MbB2, MbC2).	Fair	Good	Poor; poorly graded fine sand in surface layer.	Fair to good	Fair to good	Slight or moderate; slowly permeable subsoil.
McColl (Mc, Md)	Poor; high water table.	Poor; shallow soil.	Unsuitable	Poor	Poor	Severe; high water table; slow permeability.
Mixed alluvial land (Mn).	Poor; high water table; overflow hazard.	Poor	Unsuitable	Poor	Poor	Severe; high water table; overflow hazard.
Myatt (My)	Poor; high water table.	Good to fair	Unsuitable	Fair to good	Fair to good	Severe; high water water table much of the time.
Norfolk (NfA, NfB, NkA, NkB, NoA, NoB, NoB2, NoC2, NsA, NsB, NsC).	Good	Good	Poor; poorly graded sand in surface layer.	Good	Good	Slight
Okenee (Ok)	Poor; high water table.	Fair; high content of organic matter in surface layer.	Unsuitable	Unsuitable; organic material.	Poor	Severe; high water table much of the time.
Orangeburg (OrA, OrB, OrB2, OrC2).	Good	Good	Poor; poorly graded sand in surface layer.	Fair to good	Fair to good	Slight
Plummer (Pm)	Poor; high water table.	Poor	Unsuitable	Fair	Fair	Severe; high water table much of the time.
Portsmouth (Po, Pr)	Poor; high water table.	Fair; high content of organic matter.	Unsuitable	Unsuitable; organic material.	Unsuitable	Severe; high water table much of the time.
Rains (Ra)	Poor; high water table.	Good	Unsuitable	Fair	Fair	Severe; high water table much of the time.

See footnote at end of table.

engineering properties of the soils—Continued

Soil features affecting—					
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways
Reservoir area	Embankment				
Rapid seepage	Low to moderate strength and stability; variable but generally rapid permeability.	Seasonally high water table.	Moderate infiltration and medium water-holding capacity.	Not needed	No hazard.
Moderate seepage in subsoil.	Moderate strength and stability; moderate permeability.	Seasonally high water table and moderate permeability.	Moderate infiltration and medium water-holding capacity.	Not needed	No hazard.
Moderately slow seepage in subsoil.	Moderate to high strength and stability; moderate permeability.	Not needed	Moderate infiltration and medium water-holding capacity.	Erodible where sloping.	Erodible where sloping.
Moderately slow seepage in subsoil.	Moderate to high strength and stability; moderately slow permeability in subsoil.	Not needed	Moderate infiltration and medium water-holding capacity.	Erodible where sloping.	Erodible where sloping.
Slow seepage in subsoil.	Moderate strength and stability; slow permeability.	Seasonally high water table and slow permeability.	Slow infiltration and medium water-holding capacity.	Not needed	No hazard.
Rapid seepage	Very low strength and stability; variable permeability.	High water table	Variable but generally moderate infiltration and variable but generally medium water-holding capacity.	Not needed	No hazard.
Moderate seepage in subsoil.	Moderate strength and stability; moderate permeability in subsoil.	High water table and moderate permeability.	Moderate infiltration and low to medium water-holding capacity.	Not needed	No hazard.
Moderate seepage in subsoil.	Moderate to high strength and stability; moderate permeability.	Not needed	Moderate to moderately rapid infiltration and medium water-holding capacity.	Erodible where sloping.	Erodible where sloping.
Slow seepage in subsoil.	Unsuitable organic material; low strength and stability; slow to moderately slow permeability.	High water table and slow to moderately slow permeability in subsoil.	Moderate infiltration and medium to high water-holding capacity.	Not needed	No hazard.
Moderate seepage in subsoil.	Moderate to high strength and stability; moderate permeability.	Not needed	Moderate infiltration and medium water-holding capacity.	Erodible where sloping.	Erodible where sloping.
Rapid seepage in subsoil.	Low strength and stability; rapid permeability.	High water table; rapid permeability; poor agricultural soil.	Moderate infiltration and low water-holding capacity.	Not needed	No hazard.
Slow to moderate seepage in subsoil.	Organic material; low strength and stability; moderate to slow permeability.	High water table; moderate permeability in subsoil.	Moderate infiltration and medium water-holding capacity.	Not needed	No hazard.
Slow to moderate seepage in subsoil.	Moderate strength and stability; moderate permeability.	Seasonally high water table and moderate permeability.	Moderate infiltration and medium water-holding capacity.	Not needed	No hazard.

TABLE 10.—*Interpretation of*

Soils and map symbols [1]	Suitability for grading in winter and in wet weather	Suitability as a source of—				Limitations for septic disposal fields
		Topsoil	Sand	Road subgrade	Road fill	
Ruston (RmA, RmB, RmB2, RmC, RmC2, RsA, RsB, RsC).	Good	Good	Poor; poorly graded sand in surface layer.	Good	Good	Slight
Rutlege (Ru)	Poor; high water table.	Fair	Poor; poorly graded sand.	Fair	Fair	Severe; high water table much of the time.
Vaucluse (VaC2, VaE2, VcC, VsD2).	Good	Fair to poor	Unsuitable	Fair to good	Fair to good	Moderate; slowly permeable subsoil.
Wahee (Wa)	Poor	Good to fair; shallow surface layer.	Unsuitable	Poor above 2 feet; fair below	Poor above 2 feet; fair below.	Severe; seasonally high water table.

[1] Swamp (Sw) has been omitted from this table.

Engineering classification

In classifying soils most engineers use the system of classification approved by the American Association of State Highway Officials (AASHO). Other engineers use the Unified classification of the Corps of Engineers, U.S. Army. Both of these systems are comparable in some ways with the classification of soil texture adopted by the U.S. Department of Agriculture (USDA) and used by soil scientists and other agricultural workers. The two engineering systems and the agricultural system are described in the "PCA Soil Primer" (*7*).

The AASHO system (*1*, *7*) is based on how soils perform in highways. In this system soil materials are classified in seven principal groups. The groups range from A–1, consisting of gravelly soils of high bearing capacity, to A–7, consisting of clay soils that have low strength when wet. To further classify the soil material within each group, the relative engineering value of the soil material is indicated by a group index number. These numbers range from 0 for the best materials to 20 for the poorest. As shown in table 8, the numbers are placed in parentheses following the soil group symbol.

Some engineers prefer the Unified classification system (*7*, *13*). In this system soils are classified according to their texture, plasticity, and performance as construction materials. Soil material is classified as coarse grained (eight classes), fine grained (six classes), or highly organic. The classification of the soils in the county according to the Unified system is given in tables 8 and 9.

Soil test data

To help evaluate the soils for engineering purposes, soil samples of the major horizons of five extensive soil series were tested according to standard procedures. The laboratory test data are given in table 8.

Each soil listed in table 8 was sampled at only one location. The test data, therefore, indicate only the properties of the soil at that location. The properties of the same kind of soil at other locations may vary significantly from the soil sampled in the surface layer and in the B and C horizons. Because all samples were obtained at a depth of less than 6 feet, the data probably are not adequate for estimating the characteristics of soil materials in strongly sloping or steep areas where deep cuts are required.

The engineering soil classifications in table 8 are based on data obtained by mechanical analysis and by tests made to determine liquid limits and plastic limits. Mechanical analyses were made by combined sieve and hydrometer methods.

The test to determine plastic limit and liquid limit measures the effect of water on the consistence of the soil material. As the moisture content of a clayey soil increases from a very dry state, the material changes from a semisolid to a plastic state. As the moisture content is further increased, the material changes from a plastic to a liquid state. The plastic limit is the moisture content at which the soil material passes from a semisolid to a plastic state. The liquid limit is the moisture content at which

engineering properties of the soils—Continued

Soil features affecting—					
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways
Reservoir area	Embankment				
Moderate seepage in subsoil.	Moderate to high strength and stability; moderate permeability.	Not needed	Moderate to moderately rapid infiltration and medium water-holding capacity.	Erodible where sloping.	Erodible where sloping.
Rapid seepage in subsoil.	Surface layer high in organic material; low strength and stability; rapid permeability.	High water table and rapid permeability.	Moderate to rapid infiltration and low water-holding capacity.	Not needed	No hazard.
Moderate to rapid seepage in subsoil.	Moderate strength and stability; slow to moderate permeability.	Not needed	Moderate infiltration; low water-holding capacity; compact subsoil; poor agricultural soil.	Erodible where sloping.	Highly erodible.
Slow seepage in subsoil; sandy substratum below 24 to 42 inches.	Low strength and stability; slow permeability.	Slow permeability	Slow infiltration and medium water-holding capacity.	Not needed	No hazard.

the material passes from a plastic to a liquid state. The plasticity index is the numerical difference between the plastic limit and the liquid limit. It indicates the range of moisture content within which a soil material is in a plastic condition.

Estimated engineering properties

In table 9, beginning on p. 68, the profile of the soils in the county is briefly described and the horizons are classified according to the USDA, the Unified, and the AASHO systems of classification. Generally, the profile described does not extend to a depth of more than 6 feet. Also shown in table 9 are data on physical and chemical properties important to engineering. These properties are estimates based on field observations, past experience, and laboratory test data.

An explanation of some of the headings in table 9 may be helpful. The depth to the seasonally high water table is the highest level that the water generally rises during the year. The depth from the surface is generally that of the boundaries of the A and B horizons of the profile described as representative in the section "Formation and Classification of Soils."

The soil material in the main horizons is classified according to textural terms used by the USDA and according to the Unified and AASHO systems. The percentage of material that passes through a No. 200 and a No. 10 sieve is listed in table 9. All soils in the county consist of material finer than the openings of a No. 10 sieve.

Permeability refers to the rate that water moves through soil material. It depends largely on the texture and structure of the soil. Permeability of the soil material was estimated for uncompacted soil (*9*). The estimates were based on soil structure and were compared with the results of permeability tests made on undisturbed cores of material from the B horizon in similar soils.

Available water capacity is the amount of water a soil can hold available for plants. It is the water held in the range between field capacity and wilting point.

Reaction is listed in pH values, which indicate the degree of acidity or alkalinity of the soil. The shrink-swell potential indicates how much a soil changes in volume when its moisture content changes. It is estimated primarily on the basis of the amount and kind of clay the soil contains. In general, soils classified as CH and A–7 have a high shrink-swell potential; clean sands and gravel (single-grain structure) have a low shrink-swell potential.

Engineering interpretations

In table 10 are estimates of the suitability of the soils for winter grading and as sources of material for highway construction. Given also are ratings of limitations to use as septic-disposal fields. In addition, table 10 lists features that affect the construction of farm ponds, agricultural drainage structures, irrigation structures, terraces and diversions, and waterways. The estimates in table 10 are based on the test data in table 8, on the descriptions of the soils and the soil properties given in table 9, and on actual performance.

Figure 18.—**This farmhouse is on a slowly permeable soil that is flooded about twice a year and that, even when not flooded, has severe limitations for disposing of effluent from septic tanks.**

The suitability of soils for grading in winter or in wet weather depends on the texture of the soil material and on the depth of the water table. Plastic, clayey soils are poor for winter grading because they are difficult to handle when they are wet. They should be dried to the proper moisture content before they are compacted. Frozen clayey soils may be difficult to excavate and should not be used in road sections where compaction is needed.

The suitability of soils as a source of topsoil is evaluated on the basis of quantity and quality and is rated good to poor. Most of the soils in Bamberg County are poor or unsuitable sources of sand. Ratings for road subgrade are based on the texture of the soil material. For example, soils that have plastic clay layers are rated poor because these layers impede internal drainage and have low stability when wet. Sandy clay soils are rated fair to good because they are moderately permeable and have high strength and stability.

The suitability of the soil material for road fill depends largely on the natural water content and the texture of the soil. Plastic soils with a high natural water content are poor for fill because they are difficult to handle, to dry, and to compact. Soils consisting primarily of fine sand or silt are highly erodible and are rated poor to fair. Road fill made of highly erodible soils can be kept from eroding by controlling moisture during compaction, building a fill with gentle slopes, and protecting side slopes with fast-growing plants.

Deep sands and other soils that have rapid permeability and a low water table are only slightly limited in their use for septic-disposal fields. Severely limited soils have a high content of clay and slow permeability, or their water table is high (fig. 18).

Resistance to seepage is the main feature that determines the suitability of soils for reservoir areas. If an area is to be used as a reservoir, its soil material should be evaluated so that its thickness, permeability, and other properties are determined. The amount of seepage that can be permitted depends on the inflow of water.

In estimating features affecting drainage, the need for removing surface water and subsurface water was considered. Slow permeability and a high water table make drainage difficult. Irrigation is made difficult by slow permeability, low available water holding capacity, and shallow soil. Terracing is needed on all soils listed in table 10 except those designated not needed. Terracing deep sands is hazardous unless vegetation is maintained. Before constructing the terraces, grassed waterways should be established. Droughtiness, low fertility, and erosion slow the growth of protective grasses.

Conservation engineering

In planning conservation engineering practices for the county, a study of the engineering properties given in tables 9 and 10 is helpful. Conservation engineering practices that are supported by suitable farming practices are needed for erosion control on most of the cultivated soils in soil associations 1, 2, 3, and 8. (See the general soil map at the back of this report.) A complete program of soil and water conservation is needed that provides terracing, building waterways, and other practices. Good drainage systems are essential to efficient farming in many parts of the county.

Terraces.—In this county the channel-type gradient terraces are the most suitable. The terraces are constructed so that they drain from the ridges toward natural depressions. If the soils are deep enough, they should be smoothed so that terrace alinement and row drainage are improved. Terraces that are parallel, or as nearly so as possible, are well suited to the kinds of farming practiced in Bamberg County. A terrace should have good alinement, mild curves, a broad base, and very gentle slopes.

Waterways.—Many of the natural depressions in the county can be used as waterways. In many of the shallow depressions, trapezoidal waterways that have mild slopes are constructed. Both the natural and deepened waterways can be crossed by farm machinery. In both kinds of waterways, much fertilizer is required in establishing and maintaining growing plants for protection against erosion.

Drainage.—In many parts of the lower Coastal Plain in Bamberg County, a good drainage system is needed if the soils are to be used efficiently. Much has been done in this area to improve drainage, but additional improvements are needed.

Adequate outlets are required for good drainage. In soil associations 1, 2, and 8, small streams and draws are numerous and can be used in drainage systems. In the flat areas of soil associations 3 and 4, drainage is more difficult to establish because suitable outlets are lacking. The use of drainage outlets in the flat areas of soil association 7 may be impaired by the fluctuating water level of the rivers.

Many large and small depressions called Carolina bays occur throughout soil associations 4 and 5. Because most of these bays do not have natural outlets, ditches are excavated with a dragline (fig. 19). These ditches generally are trapezoidal in cross section. Their minimum depth is 4 feet, and their side slopes rise 1 foot in 1 foot of horizontal distance.

Many of the soils in the county can be drained with tile, and landowners are beginning to install tile to improve drainage (fig. 20). Soils that are very slowly permeable are poorly suited to tile drainage. Generally, the depth to the tile is 3 to 4 feet. The outlets are natural draws or open ditches dug with a dragline.

Other practices.—Although engineering practices other than terracing, building waterways, and installing drain-

Figure 19.—A dragline digging a ditch in Portsmouth loam of a Carolina bay.

age are little used in Bamberg County, other practices could be carried out to improve farming. Sites suitable for digging pits to supply irrigation water occur in soil associations 3, 4, and 5. Before digging a pit, however, the site should be carefully investigated to determine the suitability of the soil material, the depth to the water table, and the amount of water available. Also, in soil associations 1 and 2, sites suitable for farm ponds are numerous, and some ponds have been constructed and are used for watering livestock, supplying irrigation water, producing fish, and providing recreation.

Formation and Classification of Soils

This section is in two main parts. The first part discusses the factors of soil formation and their effect on the formation of the soils in Bamberg County. In the second part the soil series are placed in their soil orders and great soil groups, and the morphology of the soils of each series is described.

Formation of Soils

Complex processes slowly but continuously act on parent material and interact with each other to change parent material into soil. The soil, itself a complex substance, changes continuously and never reaches a static condition. It passes slowly through stages of youth, maturity, and old age. Thus, the character of a soil depends on the intensity of the soil-forming processes, the length of time that these processes have acted, and the resistance of the parent material to change.

At any stage during its development, a soil may be affected by mechanical processes. For example, erosion may wholly or partly remove the surface layer and expose the material beneath it. Then, the soil-forming processes begin working on the exposed material and form a new surface layer. Whether or not erosion affects the growth of plants depends on the rate soil material is removed and on the amount of plant nutrients available in the new surface layer. Normal erosion may benefit the soil. Accelerated erosion is caused by misuse of the land and is harmful.

Figure 20.—Laying tile for draining Dunbar sandy loam.

The characteristics of the soil that forms at any given point depend on (1) the physical and mineralogical composition of the parent material, (2) the climate, (3) the plant and animal life on and in the soil, (4) the relief, or lay of the land, and (5) the length of time the forces of soil development have acted on the soil material.

Climate and vegetation are the active factors of soil genesis. They change the parent material from an inert, heterogeneous mass to a natural body having genetically related horizons. The action of climate and vegetation on the parent material is aided or hindered in varying degree by relief. Relief, in turn, influences surface runoff, the movement of water through the soil, the natural erosion, and the native vegetation. The nature of the parent material affects the kind of profile that is formed and, in extreme cases, may be the dominant factor in forming the profile. Throughout the formation of a soil, time brings about changes. The time needed for horizons to form may be much or little, but some time is always required. A long period is needed for the development of the soil into a body in equilibrium with its environment. The influence of climate on soil and plants depends not only on temperature, rainfall, and humidity but also on relief and the physical characteristics of the soil or soil material.

PARENT MATERIAL

Bamberg County lies within the Atlantic Coastal Plain and within the Red-Yellow Podzolic soil zone of the southeastern part of the United States (*6*). The soils in the county have developed under forests of pines and hardwoods in beds of sand and clay. The materials in these beds were deposited by the Atlantic Ocean and by coastal streams.

Geologically, Bamberg County lies on two marine formations of the Eocene epoch (*2*). The northern third of the county, which is a part of the Aiken Plateau, is underlain by the Barnwell sand formation. This formation consists mainly of beds of firm, hard sand and clay. The southern two-thirds of the county is underlain by the Cooper marl formation. Both the Barnwell and Cooper formations have been overlain by Pleistocene deposits that formed the Brandywine, the Coharie, and the Sunderland marine terraces. The shoreline of the Brandywine ter-

race is 270 feet above present sea level; that of the Coharie terrace is 215 feet; and that of the Sunderland is 170 feet. The Brandywine terrace, the highest, has been dissected by erosion more than the other terraces.

The sediments deposited by the ocean range from sand to clay. The sand, principally quartz, has resisted the forces of soil formation, and Regosols have formed. Regosols do not have the textural B horizon that forms when silicate clay and other minerals break up and then move downward in the profile. Red-Yellow Podzolic soils have formed in deposits consisting of sand and clay. These soils have both color and textural horizons and are considered mature.

Alluvial materials have been deposited in the valleys of all the major streams and of some of their tributaries. These deposits consist of sand, gravel, silt, and clay, and they show little evidence of soil development. Colluvial materials have been deposited along the upper parts of intermittent drainageways. These deposits are largely sandy materials that do not have genetic horizons.

CLIMATE

Because the climate in Bamberg County is warm, and the soils are moist much of the time, chemical reactions in the soils are rapid. The water from the large amount of rainfall removes soluble and colloidal materials, including carbonates. Changes in the soils occur when plant remains decompose and release organic acids that affect the clay minerals. All of these processes continue almost continuously throughout the year because the soils are not frozen for long periods.

The climate is uniform throughout the county and does not account for broad differences in the soils within the county. Climate, however, accounts for many differences between soils in the county and those elsewhere.

LIVING ORGANISMS

Green plants, micro-organisms, earthworms, and other forms of life that live on and in soils are active in soil formation. They bring about changes that depend mainly on the kind of life processes peculiar to each. The kinds of plants and animals are determined by the climate, parent material, relief, and age of the soil, as well as by the presence of other organisms.

Generally, the kind of soil in an area varies according to the kind of vegetation. In this county the soils have formed under (1) pine-hardwood forests, (2) cypress-swamp hardwood forests that have some pond pine, and (3) forests of southern white-cedar and swamp hardwoods that have some cypress and pond pine.

The most extensive soils in this county are mineral soils that formed under a pine-hardwood forest. These soils have a light-colored surface layer that is 1 to 3 percent organic matter. Mineral soils also formed under a cypress-swamp hardwood forest. These soils have a dark-gray to black surface layer that is 5 to 15 percent organic matter. Their water table is at the surface part of the time, but it recedes enough to permit partial oxidation of the organic matter.

In a few small, swampy areas, organic soils have formed under a forest that was mostly southern white-cedar and swamp hardwoods but that contained some cypress and pond pine. The organic-matter content of these soils is between 30 and 80 percent. These organic soils have formed in areas where water stood on or near the surface most of the time. Consequently, the oxidation of the plant remains was retarded, and organic matter was permitted to accumulate.

RELIEF

Because relief modifies soil formation by affecting natural drainage, several different kinds of soils may form in similar parent material. Most of Bamberg County is a gently sloping plain, but the county ranges from nearly level to moderately steep. It is moderately steep in only a few small areas. The three general kinds of landscape that affect soil formation differently are (1) the upper Coastal Plain, (2) the weakly dissected central plain, and (3) the lower Coastal Plain.

The upper Coastal Plain, or the southeastern part of the Aiken Plateau, makes up the northwestern third of the county (*2*). Most of this area has gentle, convex slopes and is weakly to moderately dissected, but some higher areas on the broad upland ridges are nearly level and are not dissected. Also, along the streams and drainageways, a few areas have slopes of 6 to 10 percent. The soils that developed on the upper Coastal Plain have a thick solum. For the most part, surface runoff is medium, but in a few areas near streams it is more rapid, and geologic erosion has almost kept pace with soil formation. Here, the solum is slightly thinner. In the oval depressions that are scattered throughout this part of the county, the soils have developed under hydromorphic conditions and have a dark-gray surface layer and a gleyed subsoil.

The central part of the county is a weakly dissected plain that is not so high as the upper Coastal Plain. Channels in many of the streams are not distinct. In this area are many large and small, elliptical bays and depressions in which poorly drained or very poorly drained, dark-colored soils have developed. Between the bays and the streams are nearly level areas that have a few gentle slopes. These nearly level areas are moderately well drained or somewhat poorly drained. The water table fluctuates considerably. Surface runoff is slow, and water percolates slowly through the solum.

The lower Coastal Plain makes up the extreme southeastern fourth of the county. This area is weakly dissected; a few drainageways lead to the larger creeks and rivers. Much of the area is depressional, and there are nearly level slopes between the depressions. Runoff is slow, and soil development has been influenced by a high or fluctuating water table. In the depressions the soils are poorly drained and very poorly drained, and they have a dark-gray to black surface layer and a gray, gleyed subsoil. In most of the nearly level areas between the depressions, the soils are somewhat poorly drained or poorly drained. They have a gray to dark-gray surface layer, a thin, yellow upper B horizon, and a gleyed, distinctly mottled lower B horizon. In the higher areas the soils are moderately well drained. Their surface layer is lighter gray than that of the lower soils, and their yellowish-brown subsoil is thicker and more uniformly colored. The subsoil is free of gleying to a depth of about 30 inches.

Along the streams of the county are alluvial and colluvial materials in which soils developed under very poor to good drainage. Most of the soils in these areas are young

and have no horizons or only indistinct ones. Exceptions are the higher lying soils on terraces that were laid down in earlier geologic time. Genetic horizons have developed in these older soils.

TIME

As time passes, soils weather and develop a distinct morphology. The effects of time are difficult to determine precisely because a long time is required for some soil properties to change appreciably. Because Bamberg County is warm and humid, less time is required for soils to form distinct horizons than is required in dry or cold regions. Generally, less time is required for soils to form distinct horizons in moderately fine textured material than is required in sand or other coarse-textured material because the sand resists the chemical forces of weathering. The resistant quartz sand in which Lakeland and Eustis soils formed slowed the development of those soils.

The Gilead and Leaf soils are developing in kaolinitic clays that are fairly inert chemically. The Gilead soils have not developed to the degree that might be expected of soils that have been so long subjected to the soil-forming processes.

Local alluvial land and Mixed alluvial land consist of young soil material that shows little if any genetic development. This material has been recently deposited or is now being deposited, and there has not been enough time for soil development.

Generally, the rest of the soils in Bamberg County are mature and have well-developed genetic horizons.

Classification of Soils

In this subsection the higher categories of soil classification—soil order and great soil group—are defined, and the soil series of Bamberg County are placed in their respective higher categories. Described for each soil series in the county are profiles representative of the series and ranges of soil characteristics within the series.

Soils are placed in categories according to common characteristics because such groupings show relationships of soils to one another within an area and to soils in other areas. These groupings are needed to help one remember the characteristics of the many different kinds of soils. The general nature of the soils can be remembered more easily if the soils are placed in a few groups on the basis of selected characteristics that the soils in each group have in common.

The lower categories of classification—the soil type and soil series—are defined in the Glossary at the end of this report. The soil phase, a subdivision of the soil type, is also defined.

The highest category of classification is the soil order. The soil orders are made up of suborders, and they, in turn, are made up of great soil groups (*11*). Several soil series generally are in each great soil group. Table 11 shows the orders and great soil groups represented in Bamberg County. It lists the soil series in each great soil group and gives pertinent information about the soils. All three soil orders—the zonal, intrazonal, and azonal—are represented in this county.

TABLE 11.—*Classification of soils by higher categories and some of the factors contributing to their morphology*

ZONAL SOILS

Great soil group and soil series	Brief profile description	Position	Drainage	Slope	Parent material
				Percent	
Red-Yellow Podzolic soils (central concept):					
Caroline	Moderately deep, firm soils that are on uplands and have a grayish-brown loamy sand surface soil and a yellowish-red sandy clay subsoil.	Slope breaks and choppy topography.	Good	2–10	Beds of sand and clay.
Faceville	Deep, friable soils that are on uplands and have a dark-brown loamy sand surface soil and a yellowish-red sandy clay subsoil.	High, gently sloping to sloping side slopes on uplands.	Good	2–10	Beds of sand and clay.
Gilead	Moderately deep, firm soils that are on uplands and have a dark-gray to gray loamy sand surface soil and a yellowish-brown to brownish-yellow sandy clay subsoil.	Small, gently sloping areas on uplands.	Good	2–6	Beds of sand and clay.
Goldsboro	Deep, friable soils that are on uplands and have a very dark gray sandy loam surface soil and a light olive-brown sandy clay loam subsoil that is mottled with light yellowish brown, yellowish brown, and light gray in the lower part.	Very low ridges adjacent to wet areas.	Moderately good.	0–2	Beds of sand and clay.
Izagora	Moderately deep, friable soils that are on stream terraces and have a dark grayish-brown sandy loam surface soil and a light yellowish-brown sandy clay loam subsoil that is mottled with strong brown, yellowish brown, and olive gray to gray in the lower part.	Low ridges adjacent to wet areas on stream terraces.	Moderately good or somewhat poor.	0–2	Old alluvium.
Kalmia	Deep, friable soils that are on terraces and have a dark-gray loamy sand surface soil and a yellowish-brown sandy clay loam subsoil that is underlain by sand.	High stream terraces.	Good	0–2	Old alluvium on stream terraces.

TABLE 11.—*Classification of soils by higher categories and some of the factors contributing to their morphology*—Continued

ZONAL SOILS—Continued

Great soil group and soil series	Brief profile description	Position	Drainage	Slope	Parent material
				Percent	
Red-Yellow Podzolic soils (central concept)—Con.					
Marlboro	Deep, friable soils that are on uplands and have a dark grayish-brown loamy sand surface soil and a brownish-yellow to strong-brown sandy clay subsoil.	Broad, nearly level and gently sloping side slopes on uplands.	Good	0–10	Beds of sand and clay.
Norfolk	Deep, friable soils that are on uplands and have a dark grayish-brown loamy sand surface soil and a yellowish-brown sandy clay loam subsoil.	Low, broad, level ridgetops and uniformly dissected side slopes.	Good	0–10	Beds of sand and clay.
Ruston	Deep, friable soils that are on uplands and have a light brownish-gray loamy sand surface soil and a yellowish-red sandy clay loam subsoil.	Moderate ridgetops and uniformly dissected side slopes.	Good	0–10	Beds of sand and clay.
Vaucluse	Shallow soils that are on uplands and have a dark grayish-brown surface soil and a cemented sandy clay loam subsoil that is red and is mottled with yellowish brown.	Broken ridges, irregularly dissected side slopes, and slope breaks along streams.	Good	6–25	Beds of sand and clay.
Red-Yellow Podzolic soils (intergrading toward Reddish-Brown Lateritic soils):					
Magnolia	Deep, friable soils that are on uplands and have a dark-brown loamy sand surface soil and a red sandy clay to clay subsoil.	High, gently sloping and sloping side slopes on uplands.	Good	2–10	Beds of sand and clay.
Orangeburg	Deep, friable soils that are on uplands and have a dark grayish-brown loamy sand surface soil and a red sandy clay loam subsoil.	High ridges and uniformly dissected, moderate side slopes.	Good	0–10	Beds of sand and clay.
Red-Yellow Podzolic soils (intergrading toward Low-Humic Gley soils):					
Dunbar	Deep, friable soils that are on uplands and have a dark grayish-brown sandy loam surface soil and a pale-olive sandy clay subsoil that is mottled with red, gray, and yellowish brown.	Flats adjacent to low, wet areas.	Somewhat poor.	0–2	Beds of sand and clay.
Lynchburg	Deep, friable soils that are on uplands and have a very dark gray sandy loam surface soil and a light yellowish-brown subsoil that is mottled with gray, strong brown, and yellowish brown.	Low, flat areas adjacent to wet land.	Somewhat poor.	0–2	Beds of sand and clay.
Red-Yellow Podzolic soils (intergrading toward Planosols):					
Wahee	Moderately deep soils that are on terraces and have a dark-gray sandy loam surface soil and a light yellowish-brown clay subsoil that is mottled with red, yellowish brown, strong brown, light gray, and gray; underlain by sand.	Low, flat areas adjacent to wet land on stream terraces.	Somewhat poor to moderately good.	0–2	Old alluvium.

INTRAZONAL SOILS

Low-Humic Gley soils:					
Coxville	Deep, firm, wet soils that are on uplands and have a black or dark-gray sandy loam surface soil and a gray, firm sandy clay subsoil that is mottled with yellowish brown and red.	Wet flats and depressions on uplands.	Poor	0–2	Beds of sand and clay.
Grady	Deep, firm soils that are in depressions on uplands and have a black loam to sandy loam surface soil and a gray sandy clay to clay subsoil that is mottled with yellowish brown and strong brown.	Wet depressions on uplands and in Grady ponds and Carolina bays.	Poor or very poor.	0 2	Beds of sand and clay.

TABLE 11.—*Classification of soils by higher categories and some of the factors contributing to their morphology*—Continued

INTRAZONAL SOILS—Continued

Great soil group and soil series	Brief profile description	Position	Drainage	Slope	Parent material
				Percent	
Low-Humic Gley soils—Con.					
McColl	Moderately deep, depressional soils that have a very dark gray loam surface soil and a firm upper subsoil of gray sandy clay mottled with yellowish brown; lower subsoil is friable, strong-brown sandy clay loam mottled with gray.	Wet depressions in Grady ponds.	Poor	0–2	Beds of sand and clay.
Myatt	Moderately deep, wet soils that are on terraces and have a gray sandy loam surface soil and a gray, friable sandy clay loam subsoil that is underlain by light-gray sand.	Low, wet areas on river terraces.	Poor	0–2	Old alluvium.
Plummer	Deep, friable, wet soils that are on uplands and have a black sandy loam surface soil and a gray light sandy clay loam or sandy clay loam subsoil that is mottled with yellowish brown and pale olive and contains lenses of sand.	Low, wet depressions on uplands, at head of drainageways, and in Carolina bays.	Poor	0–2	Beds of sand.
Rains	Deep, friable, wet soils that are on uplands and have a black sandy loam surface soil and a gray light sandy clay loam or sandy clay loam subsoil that is mottled with yellowish brown and pale olive and contains lenses of sand.	Low, wet depressions on uplands, at head of drainageways, and in Carolina bays.	Poor	0–2	Beds of sand.
Humic Gley soils:					
Bayboro	Deep, wet soils that are in depressions and have a thick, black loam surface soil and a dark-gray or gray, very firm silty clay or clay subsoil.	In Carolina bays	Very poor	0–2	Beds of sand.
Okenee	Moderately deep, wet soils that are on terraces and have a thick, black loam surface soil and a subsoil of black to grayish-brown sand and loamy sand over very dark gray to dark gray, firm sandy clay; underlying material is sandy; surface layer is high in organic-matter content.	Low, wet depressions on river terraces.	Very poor	0–2	Old alluvium of sand and clay.
Portsmouth	Deep, wet soils that are in upland depressions and have a thick, black loam surface soil and a gray, friable sandy clay loam to sandy clay subsoil that is mottled with yellowish brown, light olive brown, and strong brown; surface layer is high in organic-matter content.	Low, wet depressions on uplands and in Carolina bays.	Very poor	0–2	Beds of sand and clay.
Rutlege	Deep, wet soils that are on uplands and have a thick, black loamy sand surface soil and a gray loamy sand subsoil.	Low, wet depressions in Carolina bays and flat, discontinuous drainageways.	Very poor	0–2	Beds of sand.
Planosols:					
Leaf (claypan)	Moderately deep, firm soils that are on terraces and have a black to gray sandy loam surface soil and a gray, firm to very firm sandy clay subsoil that is mottled with yellowish brown and is underlain by light-gray sand.	Low, wet areas on river terraces.	Poor	0–2	Old alluvium.

TABLE 11.—*Classification of soils by higher categories and some of the factors contributing to their morphology*—Continued

AZONAL SOILS

Great soil group and soil series	Brief profile description	Position	Drainage	Slope	Parent material
				Percent	
Regosols:					
Eustis	Deep, loose soils that are on uplands and terraces and have a dark-brown sand surface soil and a yellowish-red sand subsoil.	High and medium ridgetops and side slopes on uplands and stream terraces.	Excessive	0–15	Beds of sand.
Klej	Deep, very friable soils that are on uplands and have a very dark gray loamy sand surface soil and a light yellowish-brown to brownish-gray loamy sand subsoil that is mottled with strong brown, gray, light olive brown, and yellowish brown.	Broad, low flats adjacent to very wet areas on uplands.	Moderately good or somewhat poor.	0–2	Beds of loamy sand and sand.
Lakeland	Deep, loose soils that are on uplands and terraces and have a dark-gray sand surface soil and a light yellowish-brown to strong-brown sand subsoil.	High to medium, flat ridgetops and side slopes on uplands and stream terraces.	Excessive	0–15	Beds of sand.

The zonal order is made up of soils that have well-developed characteristics that reflect the predominant influence of climate and living organisms. Zonal soils are considered normal because their profiles are essentially in equilibrium with the climate and other soil-forming factors in the area. In Bamberg County the zonal soils are members of the Red-Yellow Podzolic great soil group.

Intrazonal soils have more or less well-developed soil characteristics that reflect the dominant influence of a local factor of relief or parent material over the effects of climate and living organisms. In places these soils occur with zonal soils. Intrazonal soils in this county are members of the Low-Humic Gley, Humic Gley, and Planosol great soil groups.

The azonal order is made up of soils that lack well-developed profiles because of youth, resistant parent material, or relief. The azonal soils in this county belong to the Regosol great soil group.

Many of the soil series in this county are not representative of the central concept of any great soil group, but they intergrade from one great soil group toward another. The classification of the soils in the county is based largely on characteristics observed in the field. It may be revised as knowledge about the soils increases.

Red-Yellow Podzolic soils

The Red-Yellow Podzolic great soil group is made up of well-drained, acid soils that have well-developed profiles. These soils have thin, organic A0 and organic-mineral A1 horizons that overlie a light-colored, bleached A2 horizon. The A2 horizon overlies a more clayey, red, yellowish-red, or yellow B horizon. The parent material is siliceous. The Red-Yellow Podzolic soils that are underlain by a thick layer of parent material have coarse, reticulate streaks or mottles of red, yellow, brown, and light gray in the deep horizons.

Red-Yellow Podzolic soils have formed under deciduous, coniferous, or mixed forest in a humid, warm-temperate climate. Under such conditions the decomposition of organic matter and the leaching of plant nutrients are rapid. Consequently, the soils are strongly acid or very strongly acid and are low in calcium, magnesium, and other bases. The clay fraction is commonly dominated by kaolinite. It generally contains moderate to large amounts of free iron oxides or hydroxides, especially in the Magnolia and Orangeburg soils, or it may contain small amounts of aluminum. Hydrous mica, vermiculite, or both, may form part of the clay fraction in some Red-Yellow Podzolic soils. The base-exchange capacity of Red-Yellow Podzolic soils ranges from 2 to 10 milliequivalents (meq.) per 100 grams of soil. The base saturation is less than 35 percent.

Differences in morphology among the Red-Yellow Podzolic soils in the county are largely, but not entirely, associated with the nature of the parent material, especially with its texture. In cultivated areas the soil materials in the A0 and A1 horizons have been mixed so much that the horizons are no longer distinguishable. If accelerated erosion has occurred, much or all of the A horizon may have been removed. In a few members of the group, especially in the more sandy soils, the horizon that has reticulate streaks or mottles is absent.

RED-YELLOW PODZOLIC SOILS (CENTRAL CONCEPT)

In Bamberg County the Red-Yellow Podzolic soils that most nearly fit the central concept of that great soil group are in the Caroline, Faceville, Kalmia, Marlboro, Norfolk, Ruston, and Vaucluse series. Soils of the Goldsboro, Gilead, and Izagora series have a mottled subsoil and are

outside the central concept, but they are described with the representative Red-Yellow Podzolic soils.

Caroline series.—Profile 3 miles south of Ehrhardt on U.S. Highway No. 601 in an eroded cultivated field with slopes of 6 to 10 percent:

Ap—0 to 6 inches, grayish-brown (10YR 5/2) loamy sand; weak, fine, granular structure; very friable; many fine roots; a few brown concretions; strongly acid; clear boundary.

A2—6 to 7 inches, reddish-yellow (7.5YR 6/6) loamy sand; weak, fine, granular structure; very friable; many fine roots; a few dark-brown concretions of iron; strongly acid; abrupt, wavy boundary.

B21t—7 to 10 inches, yellowish-red (5YR 5/6) sandy clay loam; weak, medium, subangular blocky structure; firm when moist, sticky and slightly plastic when wet; patchy clay films; material from the A horizon in old root channels; small roots common; clear, wavy boundary.

B22t—10 to 24 inches, yellowish-red (5YR 5/6) sandy clay; moderate, medium, angular blocky to subangular blocky structure; firm when moist, sticky when wet; continuous clay films on ped surfaces; few small pores and roots; few dark-brown concretions of iron; strongly acid; gradual boundary.

B3t—24 to 28 inches, yellowish-red (5YR 5/6) sandy clay mottled with brownish yellow (10YR 6/8) and red (10R 4/6); mottles are common, fine to medium, and distinct; moderate, medium, angular blocky structure; firm when moist, sticky when wet; prominent clay films; a few small pores, small roots, and small dark-brown concretions of iron; clear boundary.

C—28 inches +, mottled brownish-yellow (10YR 6/8), dark-red (10R 3/6), olive-yellow (2.5Y 6/8), and reddish-yellow (5YR 6/6) sandy clay loam; massive; friable or very friable.

In most places the loamy sand A horizon ranges from 3 to 13 inches in thickness, but in a few places it is 18 to 30 inches thick. The Ap horizon ranges from dark grayish brown to grayish brown, except in some areas where it is yellowish brown because material from the A2 and the B horizons has been mixed into it. The subsoil ranges from yellowish red to red. Brownish-yellow and red mottling occurs at a depth of 24 to 30 inches, generally at 30 inches. The B2 horizon normally is sandy clay or fine sandy loam, but in areas near the Faceville or Ruston soils, the B2 horizon ranges from sandy clay to sandy clay loam. In areas where the texture of the subsoil is finer than normal, structure is stronger.

Faceville series.—Profile one-half mile southeast of Finland in a cultivated field with slopes of 2 to 6 percent:

Ap—0 to 10 inches, dark-brown (10YR 3/3) loamy sand; weak, fine, granular structure; very friable; many fine roots; a few, small, brown concretions; acid; abrupt, smooth boundary.

B1—10 to 12 inches, strong-brown (7.5YR 5/6) light sandy clay loam; weak, medium to fine, subangular blocky structure; friable; many fine roots and pore spaces; a few, small, dark-brown concretions; acid; abrupt, wavy boundary.

B21t—12 to 23 inches, yellowish-red (5YR 5/8) sandy clay; weak, medium to fine, subangular blocky structure; friable when moist, sticky when wet; a few, small, dark-brown concretions and a few poorly formed concretions; few small roots; acid; clear, wavy boundary.

B22t—23 to 49 inches, yellowish-red (5YR 4/8) sandy clay; few, fine, faint mottles of red (2.5YR 4/8) and brownish yellow (10YR 6/8); weak, medium, subangular blocky structure; a few, poorly formed and well-formed, brown concretions; acid; clear, wavy boundary.

B3—49 to 61 inches, brownish-yellow (10YR 6/8) clay loam; common, medium, distinct mottles of red (10R 4/6); weak, fine to medium, subangular blocky structure; friable; a few, small, well-formed and poorly formed concretions; acid; gradual boundary.

C—61 inches +, mottled reddish-yellow (7.5YR 6/8), strong-brown (7.5YR 5/8), red (10R 4/6), and light-gray (5YR 7/1) clay loam; few well-formed and poorly formed concretions.

The surface layer ranges from loamy sand to sandy loam and is sandy loam in areas where the A horizon has been thinned and material from the B1 horizon has been mixed with it through tillage. The thickness of the A horizon ranges from 3 to 12 inches. In the more sloping areas the B horizon is slightly thinner than normal.

Gilead series.—Profile 3 miles south of Denmark in a cultivated field with slopes of 2 to 6 percent:

Ap—0 to 6 inches, dark-gray (10YR 4/1) to gray (10YR 5/1) loamy sand; weak, fine, granular structure; very friable; scattered, small pieces of quartz gravel; many fine roots; acid; abrupt, smooth boundary.

A2—6 to 10 inches, yellowish-brown (10YR 5/6) loamy sand to sandy loam; very friable; a few small pieces of quartz gravel; many fine roots; acid; clear boundary.

B1—10 to 14 inches, yellowish-brown (10YR 5/6) sandy clay loam; weak, medium, subangular blocky structure; friable; few small pieces of quartz gravel; few fine roots; acid; clear, wavy boundary.

B2t—14 to 21 inches, yellowish-brown (10YR 5/8) sandy clay mottled with yellowish brown (10YR 5/4), brownish yellow (10YR 6/8), and light red (2.5YR 6/8); mottles are few, medium, and faint; moderate, medium, subangular blocky structure; firm when moist, brittle when dry; distinct clay films on ped surfaces; few small pieces of quartz gravel; very few, fine roots; acid; clear, wavy boundary.

B3t—21 to 26 inches, brownish-yellow (10YR 6/8) sandy clay mottled with strong brown (7.5YR 5/8), reddish yellow (5YR 6/8), yellowish red (5YR 5/8), and light gray (10YR 7/1); mottles are many, fine, and faint; weak, fine, subangular blocky structure; firm when moist, brittle when dry; patchy clay films; acid; gradual, wavy boundary.

C—26 inches +, mottled light-gray, reddish-yellow, red, yellowish-brown, and brownish-yellow sandy clay loam; massive (structureless); firm to friable; many grains of coarse sand; a few balls of light-gray, kaolinitic clay.

The surface layer generally ranges from 6 to 14 inches in thickness, but it is as much as 30 inches thick in a few places. Mottling in the B horizon starts at a depth of 18 to 28 inches. The B horizon ranges from yellowish brown and brownish yellow to yellowish red in color and from firm sandy clay to firm sandy clay loam in texture.

Goldsboro series.—Profile 14 miles southeast of Bamberg in a cultivated field:

Ap—0 to 7 inches, very dark gray (10YR 3/1) loamy sand; weak, fine, granular structure; very friable; many fine roots; acid; abrupt, smooth boundary.

A2—7 to 15 inches, light yellowish-brown (2.5Y 6/4) loamy sand to sandy loam; a few, fine, faint mottles of brownish yellow in lower part; weak, fine, granular structure; very friable; many fine roots; acid; abrupt, smooth boundary.

B21t—15 to 28 inches, yellowish-brown (10YR 5/6) sandy clay loam; few, fine, faint to distinct mottles of light yellowish brown (10YR 6/4); weak, fine to medium, subangular blocky structure; very friable; patchy clay films; a few brown concretions; few grains of coarse sand; slightly sticky when wet; pore spaces and fine roots common; acid; gradual, wavy boundary.

B22t—28 to 36 inches, yellowish-brown (10YR 5/6) sandy clay loam; few, fine, distinct mottles of light gray (N 7/0)

and light brownish gray (2.5Y 6/2); gray mottles increase with increasing depth; weak, medium to fine, subangular blocky structure; patchy clay films; very friable when moist, slightly sticky when wet; brown concretions common; pore space common; a few fine roots; acid; gradual to diffuse boundary.

Cg—36 inches +, mottled light-gray, gray, yellowish-brown, red, and strong-brown sandy clay loam; gray increases with increasing depth; weak, medium, subangular blocky structure; very friable when moist, slightly sticky when wet; small and large concretions common; water table at 42 inches.

The surface layer ranges from 10 to 30 inches in thickness and in a few places is fine sandy loam. The subsoil ranges from sandy loam to sandy clay loam and is distinctly mottled with gray at a depth of 24 to 30 inches.

Izagora series.—Profile 1½ miles northeast of Midway or 1 mile southwest of Cypress Landing in a field of pines:

O1—1 inch to 0, pine needles and decaying organic debris.

A1—0 to 7 inches, very dark gray (10YR 3/1) sandy loam; weak, fine, granular structure; very friable; many fine roots; acid; abrupt, smooth boundary.

A2—7 to 11 inches, light yellowish-brown (2.5Y 6/4) sandy loam; weak, fine, granular structure; very friable; many fine roots; acid; abrupt, smooth boundary.

B21t—11 to 20 inches, brownish-yellow (10YR 6/6) sandy clay loam; few, fine, faint mottles of strong brown (7.5YR 5/8) and yellowish brown (10YR 5/6); more distinctly mottled with increasing depth; weak, coarse, angular blocky to subangular blocky structure; friable; darker colored material or organic matter from the A horizon on some ped surfaces; patchy clay films; few roots; numerous pore spaces; acid; gradual, wavy boundary.

B22t—20 to 28 inches, light yellowish-brown (2.5Y 6/4) sandy clay loam; common to few, medium, faint to distinct mottles of yellowish red (5YR 5/6), strong brown (7.5YR 5/8), and light olive gray (5Y 6/2); mottles increase with increasing depth; weak, fine to medium, subangular blocky structure; friable; few fine roots; a few patchy clay films; acid; clear or gradual, wavy boundary.

B3t—28 to 32 inches, light yellowish-brown (2.5Y 6/4) to pale-olive (5Y 6/3 and 6/4) sandy clay loam; many, medium, distinct to faint mottles of red (2.5YR 5/8), strong brown (7.5YR 5/8), and pale olive (5Y 6/4); friable; acid; clear, wavy boundary.

IIC1—32 to 39 inches, pale-yellow (5Y 7/3) loamy sand to sand; many, medium to coarse mottles of light yellowish brown (2.5Y 6/4) and yellowish red (5YR 5/8); massive to single grain (structureless); very friable to loose; acid; gradual, wavy boundary.

IIC2—39 to 44 inches +, white (10YR 8/1) sand; single grain (structureless); loose; some grains of yellowish and brownish sand; a few small pieces of brown gravel.

In a few places the surface layer is loamy sand that ranges from 18 to 30 inches in thickness. The depth to gray mottling generally ranges from 20 to 30 inches, but in some places the B21t horizon is not mottled and is uniformly brownish yellow in color. The B horizon ranges from sandy loam to sandy clay loam. Izagora soils are moderately well drained or somewhat poorly drained. Their drainage is thus intermediate between that of the well-drained Kalmia soils and the poorly drained Myatt soils.

Kalmia series.—Profile 1 mile north of Farrells Crossroads in a field of newly planted pines:

Ap—0 to 7 inches, dark-gray (10YR 4/1) loamy sand; weak, fine, granular structure; very friable; many fine roots; acid; abrupt boundary.

A2—7 to 16 inches, pale-brown (10YR 6/3) loamy sand; weak, fine, granular structure; very friable; Ap material in old root channels; many fine roots; acid; abrupt boundary.

B2t—16 to 32 inches, yellowish-brown (10YR 5/8) sandy clay loam; a few, fine, faint streaks and mottles of light yellowish brown; weak, medium, subangular blocky structure; friable when moist, slightly sticky when wet; streaks of A2 material in old root and worm channels; large, rounded grains of quartz sand common; few fine roots; acid; clear boundary.

B3—32 to 41 inches, yellowish-brown (10YR 5/8) loamy sand to sand; sand in lower part; few, medium to fine, faint to distinct mottles of yellowish brown (10YR 5/8) and yellowish red (5YR 4/8); weak, fine, subangular blocky to granular structure; very friable to loose; acid; diffuse boundary.

IIC—41 inches +, light-gray (10YR 7/1) to gray (2.5Y 6/0) sand; flecks of reddish yellow (7.5YR 6/8) and strong brown (7.5YR 5/6); single grain (structureless); acid.

The loamy sand surface layer ranges from 12 to 18 inches in thickness. The B horizon ranges from sandy loam to sandy clay loam and in some places is mottled at a depth of 30 inches.

Marlboro series.—Profile 4 miles west of Denmark in a cultivated field:

Ap—0 to 7 inches, dark grayish-brown (2.5Y 4/2) loamy sand; weak, fine, granular structure; very friable; many fine roots; few, fine to medium, firm, brown concretions on the surface and throughout layer; acid; abrupt boundary.

B21t—7 to 32 inches, yellowish-brown (10YR 5/8) and brownish-yellow (10YR 6/8) sandy clay; few, fine, faint mottles of yellowish red (5YR 5/8); weak, medium, subangular blocky structure; friable when moist, sticky to somewhat plastic when wet; many fine roots; a few, fine to medium, firm and soft concretions; acid; gradual boundary.

B22t—32 to 43 inches, strong-brown (7.5YR 5/8) sandy clay; few, fine, faint mottles of light red (2.5YR 6/8); weak, medium, subangular blocky structure; friable when moist, sticky and somewhat plastic when wet; a few, fine to medium, firm and soft concretions; acid; clear boundary.

B23t—43 to 73 inches, brownish-yellow (10YR 6/8) sandy clay loam; weak, fine, subangular blocky structure; very friable; clear boundary.

C—73 to 85 inches +, brownish-yellow (10YR 6/8) sandy clay loam; many, medium, distinct mottles of red (10R 4/6) and light gray (10YR 7/2); massive (structureless); brittle when dry, very friable when moist; many concretions.

In places the B horizon extends to a depth of only 36 to 40 inches, and in some places a thin A2 horizon has formed.

Norfolk series.—Profile 2¼ miles south of Bamberg in a nearly level field newly planted to pines:

Ap—0 to 6 inches, dark-gray (10YR 4/1) loamy sand; weak, fine, granular structure; very friable; many fine roots; acid; abrupt, wavy boundary.

A2—6 to 16 inches, light yellowish-brown (10YR 6/4) to very pale brown (10YR 7/4) loamy sand; weak, fine, granular structure; very friable; many fine roots; acid; abrupt, wavy boundary.

B21t—16 to 36 inches, yellowish-brown (10YR 5/6) sandy clay loam; weak, medium, subangular blocky structure; friable; many fine roots; acid; gradual, wavy boundary.

B22t—36 to 48 inches, strong-brown (7.5YR 5/8) sandy clay loam; few, fine to medium, distinct mottles of red (2.5YR 5/8 and 4/8) and yellowish red (5YR 5/8); weak, fine to medium, subangular blocky structure; friable; patchy clay films; gradual, wavy boundary.

B3t—48 to 54 inches, strong-brown (7.5YR 5/8) sandy clay loam; common, medium, distinct mottles of red

(2.5YR 4/8 and 5/8), light gray (10YR 7/1), and brownish yellow (10YR 6/6); weak, fine, subangular blocky structure; friable; clear, wavy boundary.

C—54 to 60 inches +, mottled red (10R 4/8), light-gray (10YR 7/1), light yellowish-brown (10YR 6/4), and brownish-yellow (10YR 6/8) sandy clay loam; massive (structureless); friable; acid.

Except for the thick-surface phases of Norfolk soils, the surface layer ranges from 8 to 18 inches in thickness. In the thick-surface phases the surface layer ranges from 18 to 30 inches but is about 24 inches thick in most places.

Ruston series.—Profile 3½ miles east of Midway in a field of young pines that has slopes of 2 to 6 percent.

Ap—0 to 7 inches, light brownish-gray (10YR 6/2) loamy sand to sandy loam; weak, fine, granular structure; very friable; a few iron concretions; many fine roots; acid; clear boundary.

A2—7 to 14 inches, light yellowish-brown (10YR 6/4) loamy sand; weak, fine, granular structure; very friable; a few brown concretions of iron; many fine roots; acid; abrupt boundary.

B2t—14 to 37 inches, yellowish-red (5YR 4/8) sandy clay loam; weak, medium, subangular blocky structure; friable; patchy clay films; a few brown concretions; a few fine roots and many pore spaces; acid; clear boundary.

B3—37 to 41 inches, yellowish-red (5YR 5/8) sandy clay loam; few to common, medium mottles of brownish yellow (10YR 6/8) and red (10R 4/6); weak, medium, subangular blocky structure; friable; a few brown concretions; acid; clear boundary.

C—41 inches +, mottled yellowish-brown (10YR 5/8), brownish-yellow (10YR 6/8), light-gray (2.5Y 7/2) and red (10R 4/6) sandy clay loam; weak, fine, subangular blocky structure; friable when moist, slightly brittle when dry; acid.

The surface layer is sandy loam in only a few places. Except for the thick-surface phases, the surface layer ranges from 3 to 18 inches in thickness but is generally 10 to 12 inches thick. In the thick-surface phases, the surface layer ranges from 18 to 30 inches in thickness but is generally about 24 inches thick. The color of the surface layer ranges from grayish brown to yellowish red and is yellowish red or yellowish brown in some areas where the surface layer is thin and tillage extends into the B horizon. The subsoil ranges from sandy clay loam to sandy loam. It ranges from yellowish red to strong brown in areas near the Norfolk soils and from yellowish red to red near the Orangeburg soils.

Vaucluse series.—Profile 1½ miles southeast of the Springtown Church on a formerly cultivated, eroded hillside with slopes of 6 to 10 percent:

O1—½ inch to 0, debris of oak leaves, pine needles, and broomsedge.

A1—0 to 5 inches, dark grayish-brown (10YR 4/2) loamy sand; weak, fine, granular structure; very friable; many roots; acid; clear, smooth boundary.

A2—5 to 9 inches, light yellowish-brown (10YR 6/4) loamy sand or sand; weak, fine, granular structure; loose or very friable; acid; abrupt, wavy boundary.

B2t—9 to 19 inches, red (10R 4/6) sandy clay loam; streaks of yellowish brown (10YR 5/6); firm; very few roots; acid; clear, wavy boundary.

C—19 inches +, red (10R 4/6) sandy clay loam that becomes sandier with increasing depth; common, medium to coarse, distinct mottles of light gray (10YR 7/1), yellowish brown (10YR 5/8), and brownish yellow (10YR 6/8); massive (structureless); brittle when dry, firm when moist; some soft concretions.

Except for the thick-surface phase, the thickness of the A horizon ranges from 3 to 10 inches. The thickness depends on the amount of erosion that has taken place. In the thick-surface phase, the A horizon is 18 to 30 inches thick. The color of the loamy sand surface layer ranges from dark grayish brown to light grayish brown and depends on the amount of organic matter. In the eroded areas the surface layer is redder than normal. The subsoil ranges from sandy clay loam to sandy loam in texture and generally from reddish brown to yellowish red in color, but in some places the subsoil is strong brown. The B horizon is 8 to 20 inches thick. It is thinner in the steeper areas than in the less sloping areas. The depth to the mottles in the C horizon varies.

RED-YELLOW PODZOLIC SOILS (INTERGRADING TOWARD REDDISH-BROWN LATERITIC SOILS)

The soils of the Magnolia and Orangeburg series have some characteristics of Reddish-Brown Lateritic soils. The subsoil of the Magnolia and Orangeburg soils is deep and red to dark red, and the C horizon is deeply weathered. Magnolia soils have a dark-brown A1 or Ap horizon, but a leached A2 horizon is generally missing or is very thin. The Orangeburg soils have a grayish-brown A1 or Ap horizon and a fairly well leached A2 horizon of yellowish brown or strong brown. Chroma and value vary little throughout the B and C horizons of the Orangeburg and Magnolia soils. The Orangeburg soils, however, are coarser textured in the B horizon than the Magnolia soils.

Magnolia series.—Profile just north of overhead bridge 1¼ miles southeast of Finland in a cultivated field with slopes of 2 to 6 percent:

Ap—0 to 7 inches, dark-brown (10YR 4/3) loamy sand; weak, fine, granular structure; very friable; many fine roots; acid; abrupt boundary.

B2t—7 to 72 inches, red (10R 4/6) clay; weak, medium, subangular and angular blocky structure; friable to slightly firm when moist, sticky and plastic when wet; more firm with increasing depth; patchy to well-formed clay films; fine roots common in upper part; acid; gradual boundary.

B3t—72 to 84 inches, red (2.5YR 4/8) sandy clay loam; common, medium, distinct mottles of brownish yellow; weak, fine, subangular blocky structure; friable; acid; clear boundary.

C1—84 inches +, mottled red (2.5YR 4/8) and (10R 4/6) to yellowish-brown (10YR 5/8) sandy clay loam; friable when moist, brittle when dry; acid.

The Ap horizon ranges from 3 to 12 inches in thickness. It is more red than dark brown in areas where tillage has mixed material from the B horizon into it. In some places a few concretions of iron occur in the surface layer.

Orangeburg series.—Profile three-fourths mile west of Govan and 1 mile east of Georges Creek Church in a nearly level, cultivated field:

Ap—0 to 10 inches, dark grayish-brown (10YR 4/2) loamy sand; weak, fine, granular structure; very friable; many fine roots; acid; abrupt boundary.

A2—10 to 14 inches, strong-brown (7.5YR 5/6) loamy sand; weak, fine, granular structure; very friable; many fine roots; acid; clear boundary.

B1t—14 to 17 inches, red (2.5YR 5/6) sandy loam; weak, fine, subangular blocky structure; friable; a few fine roots; acid; clear boundary.

B21t—17 to 21 inches, red (2.5YR 4/8) sandy clay loam; weak, fine to medium, subangular blocky structure; friable; a few fine roots; many pore spaces; acid; abrupt, wavy boundary.

B22t—21 to 67 inches, red (10R 4/6) sandy clay loam; weak, medium, subangular blocky structure; friable to

slightly firm; patchy clay films on ped surfaces; many pore spaces; acid; gradual boundary.

C1—67 to 92 inches, red (10R 4/6) sandy clay loam; common, fine, distinct mottles of reddish yellow (7.5YR 6/8), strong brown (7.5YR 5/8), and light gray (10YR 7/1); weak, medium, subangular blocky structure; very friable.

The thickness of the A horizon ranges from 3 to 18 inches and depends on the amount of erosion that has taken place. Where the A horizon is thin, it is redder than normal because tillage has mixed material from the B horizon into it. In a few places the B horizon ranges from sandy clay loam to sandy loam. In areas near the Ruston soils, the subsoil is yellowish red instead of red.

RED-YELLOW PODZOLIC SOILS (INTERGRADING TOWARD LOW-HUMIC GLEY SOILS)

The soils of the Dunbar and Lynchburg series are Red-Yellow Podzolic soils that have some characteristics of poorly drained Low-Humic Gley soils. The Dunbar soils are somewhat poorly drained or moderately well drained, and the Lynchburg soils are somewhat poorly drained. The Dunbar and Lynchburg soils are gray and weakly gleyed in the lower part of the B horizon, at a depth of 24 to 36 inches. The gleying is a result of the effects of the ground water and of slow internal drainage and poor aeration in the firm, clayey subsoil. The upper subsoil is similar in color to the upper subsoil of normal Red-Yellow Podzolic soils. The Dunbar soils are similar to the Marlboro soils in texture but are not so well drained as those soils.

Dunbar series.—Profile 1 mile east of the Springtown Church in a cultivated field:

Ap—0 to 7 inches, dark grayish-brown (2.5Y 4/2) sandy loam; weak, fine, granular structure; very friable; many fine roots; acid; abrupt, smooth boundary.

A1—7 to 9 inches, very dark grayish-brown (10YR 3/2) sandy loam; weak, fine, granular structure; very friable; many fine roots; acid; clear, smooth boundary.

B21t—9 to 15 inches, grayish-brown (10YR 5/2) heavy sandy clay loam; common, fine, faint mottles of brownish yellow (10YR 6/8); weak, fine to medium, subangular and angular blocky structure; slightly firm when moist, sticky when wet; patchy clay films; many fine roots and pores; acid; gradual boundary.

B22t—15 to 26 inches, brown (10YR 5/3) to pale-brown (10YR 6/3) sandy clay; common, medium to large, distinct mottles of gray (5Y 6/1) and (2.5Y 6/0), brownish yellow (10YR 6/8), and yellowish brown (10YR 5/8); weak, fine to medium, subangular and angular blocky structure; firm when moist, sticky when wet; patchy clay films; acid; gradual boundary.

B3g—26 to 41 inches, gray (2.5Y 6/0) sandy clay; many, medium to coarse, distinct mottles of red (2.5YR 4/8), yellowish brown (10YR 5/8), and brownish yellow (10YR 6/8); massive (structureless) to weak, fine, subangular blocky structure; firm; thin clay films on ped surfaces; acid; gradual boundary.

C1g—41 to 67 inches +, gray (2.5Y 6/0 and 7.5YR 5/0) sandy clay; common, fine to medium, distinct mottles of red (2.5YR 4/8), dark red (10R 3/6), reddish yellow (7.5YR 6/8), and strong brown (7.5YR 5/8); massive (structureless); very firm to firm.

The surface layer ranges from sandy loam to fine sandy loam in texture and from 7 to 18 inches in thickness. The depth to mottling ranges from 15 to 30 inches. It is greater where Dunbar soils are near the Norfolk or Marlboro soils and less where near the Coxville soils. The B21t horizon ranges from grayish brown to light yellowish brown in color.

Lynchburg series.—Profile 2½ miles south of Farrells Crossroads in an idle field:

Ap—0 to 6 inches, very dark gray (10YR 3/1) loamy sand; weak, fine, granular structure; very friable; many fine roots; acid; abrupt, smooth boundary.

A2 6 to 9 inches, grayish-brown (2.5Y 5/2) loamy sand; weak, fine, granular structure; very friable; many fine roots; acid; clear, wavy boundary.

A3—9 to 14 inches, light yellowish-brown (2.5Y 6/4) sandy loam; few, fine to medium, faint mottles of light yellowish brown (10YR 6/4), strong brown (7.5YR 5/8), and gray (5Y 6/1); weak, fine, granular structure; very friable; many fine roots; acid; clear, wavy boundary.

B21t—14 to 23 inches, light yellowish-brown (2.5Y 6/4) light sandy clay loam; common, medium, distinct mottles of gray (5Y 6/1) and yellowish brown (10YR 5/8); weak, fine to medium, subangular blocky structure; very friable when moist, slightly sticky when wet; fine roots common; acid; gradual, wavy boundary.

B22g—23 to 41 inches, gray (5Y 6/1) to (10YR 6/1) light sandy clay loam; common, fine to medium, distinct mottles of yellowish brown (10YR 5/8), pale olive (5Y 6/3), and light yellowish brown (2.5Y 6/4); weak, medium, blocky structure to massive (structureless); slightly sticky when wet; few fine roots, acid; gradual, wavy boundary.

Cg—41 to 63 inches, gray (10YR 6/1) sandy clay loam; massive (structureless); very friable; lenses of white (10YR 8/1) sand; ground water at a depth of 45 inches.

The A1 or Ap horizon ranges from very dark gray to light gray. In a few places too small to be mapped separately, the surface layer ranges from 18 to 30 inches in thickness and is loamy sand or loamy fine sand. The depth to mottling ranges from 14 to 22 inches where these soils are near the poorly drained Rains soils and the moderately well drained Goldsboro soils. The B horizon ranges from light sandy clay loam to sandy loam. Slopes range from 0 to 2 percent.

RED-YELLOW PODZOLIC SOILS (INTERGRADING TOWARD PLANOSOLS)

Wahee soils are Red-Yellow Podzolic soils, but in this county they have some characteristics of Planosols.

Wahee series.—Profile 3 miles north of Bamberg in a cultivated field on a stream terrace along the Edisto River:

Ap—0 to 7 inches, dark-gray (10YR 4/1) sandy loam; weak, fine, granular structure; friable; many fine roots and pores; acid; abrupt, wavy boundary.

B21t—7 to 17 inches, brownish-yellow (10YR 6/6) clay; fine, distinct mottles of red (2.5YR 5/8) and reddish yellow (7.5YR 6/8); moderate, medium, angular blocky and subangular blocky structure; very firm when moist, sticky and plastic when wet; continuous clay films; many fine roots; acid; gradual, wavy boundary.

B22t—17 to 25 inches, light yellowish-brown (2.5Y 6/4) clay; common, distinct, red (2.5YR 4/8) mottles and many, medium, distinct mottles of strong brown (7.5YR 5/8) and light gray (7.5YR 7/0); moderate, medium, angular blocky structure; very firm when moist, sticky and plastic when wet; a few fine roots; acid; clear, wavy boundary.

B3g—25 to 28 inches, light-gray (5Y 7/1) heavy sandy clay loam; common, medium, prominent mottles of yellowish brown (10YR 5/8); massive (structureless); slightly sticky and plastic when wet; acid; abrupt, wavy boundary.

Cg—28 to 34 inches, light-gray (5Y 7/1) sandy loam; streaks of yellow (10YR 7/8) and red (2.5YR 5/8); massive (structureless); very friable; a few, fine mica flakes; acid; gradual, wavy boundary.

IIC—34 to 38 inches +, mottled strong-brown (7.5YR 5/8) and yellow (10YR 7/6) sand with fine mottles or

specks of yellowish red (5YR 5/8); loose; a few, fine mica flakes; acid.

The surface layer ranges from 5 to 12 inches in thickness and is sandy loam or fine sandy loam in texture. Its color ranges from very dark gray to gray and depends on the content of organic matter. Red and yellowish-brown mottling is at a depth of 12 to 24 inches, and gray mottling is at a depth of 20 to 32 inches. The B horizon ranges from sandy clay loam to clay. The depth to the sandy substratum, or IIC horizon, ranges from 25 to 40 inches.

Low-Humic Gley soils

The Low-Humic Gley great soil group is made up of poorly drained and very poorly drained soils. These soils have a thin surface layer that is moderately high in organic-matter content. Beneath the surface layer are brown, gleyed mineral horizons that differ little in texture. Gleization is the main process of soil development.

The Low-Humic Gley soils in this county formed in acid marine sediments under a forest of pines and hardwoods in which the main trees were loblolly pine, pond pine, blackgum, sweetgum, maple, and various kinds of oak. The formation of these soils has been influenced more by the nearly level relief, the high water table, and the impeded drainage than by climate and vegetation. The surface layer ranges from dark gray to black. The subsoil is dominantly gray, or it is mottled yellow, brown, and gray. It is loamy sand to sandy clay or clay loam.

The Low-Humic Gley soils in Bamberg County are in the Coxville, Grady, McColl, Myatt, Plummer, and Rains series. The soils in these series lie in nearly level or depressional areas that have a high water table. They are similar in the color of their surface layer and in the color and mottling of their subsoil. The Coxville, Grady, and McColl soils are finer textured in the surface layer and subsoil than the Myatt and Plummer soils and have more mottling in the subsoil than the Rains. The Plummer soils are loamy sand or sand throughout their profile. Myatt soils are similar to the Rains soils in color, but they are firmer in the subsoil than the Rains and have developed on stream terraces instead of on uplands. Like the Grady soils, the McColl soils developed in depressions. The Grady soils have yellowish-brown and strong-brown mottles in the lower B horizon.

Coxville series.—Profile 11 miles southwest of Bamberg in a wooded area:

O1—½ inch to 0, oak leaves, sphagnum moss, broomsedge, and decayed organic matter.

A11—0 to 3 inches, black (10YR 2/1) sandy loam; weak, fine, granular structure; friable; many fine to medium roots; high content of organic matter; acid; clear boundary.

A12—3 to 7 inches, dark-gray (10YR 4/1) sandy loam; weak, fine, granular structure; friable; many fine to medium roots; medium content of organic matter; acid; clear, smooth boundary.

A2—7 to 12 inches, gray (10YR 6/1) sandy loam; weak, fine, granular structure; very friable; many fine to medium roots; acid; abrupt, smooth boundary.

B21g—12 to 18 inches, (10YR 5/1 to 6/1) sandy clay mottled with yellowish brown (10YR 5/8) and red (10R 4/8 to 5/8); common, medium to fine, distinct mottles; weak, fine to medium, subangular blocky structure; firm when moist, sticky and plastic when wet; fine roots common; a few rounded grains of quartz sand; acid; clear, wavy boundary.

B22g—18 to 37 inches, gray (5Y 5/1) sandy clay mottled with yellowish brown (10YR 5/8) and red (10R 4/8 to 5/8); common, medium, distinct mottles; weak, fine to medium, subangular blocky structure; firm to very firm when moist, sticky and plastic when wet; few fine roots and pore spaces; clay films on ped surfaces; acid; clear, wavy boundary.

B3g—37 to 49 inches, gray (5Y 5/1) sandy clay; common, fine, distinct mottles of light olive brown (2.5Y 5/4 to 5/6) and a very few of light red (10R 6/8); weak, fine, subangular blocky structure; firm when moist, sticky and plastic when wet; clay films on ped surfaces; acid; gradual boundary.

Cg—49 inches +, gray (2.5Y 5/0) sandy clay to clay; massive (structureless); firm to very firm when moist, sticky and plastic when wet; acid.

The A horizon ranges from 4 to 16 inches in thickness and from sandy loam to silt loam in texture. The color of the surface layer ranges from black to dark gray and depends on the content of organic matter. In places the red mottles are less numerous but more prominent than normal, and in places they are missing entirely. The yellowish-brown mottles are generally present but in varying amounts. The subsoil is generally sandy clay, but in some places it ranges from sandy clay to clay.

Grady series.—Profile 1 mile east of the Springtown Church in an oval, pastured depression:

Ap—0 to 7 inches, black (10YR 2/1) loam; weak, fine to medium, granular structure; friable; many fine roots; acid; abrupt, smooth boundary.

B21g—7 to 13 inches, gray (10YR 6/1) heavy sandy clay loam; few, fine, faint mottles of yellowish brown (10YR 5/8); dries to a shade of very light gray; weak, fine to medium, subangular blocky structure; slightly firm to friable when moist, slightly sticky when wet; patchy clay films; a few, large, rounded grains of quartz; acid; clear, wavy boundary.

B22g—13 to 36 inches, gray (10YR 6/1) sandy clay to clay; dries to a shade of light grey; common, fine, faint to distinct mottles of yellowish brown (10YR 5/8) and strong brown (7.5YR 5/8); moderate, medium to coarse, subangular blocky and angular blocky structure; firm to very firm when moist, slightly sticky and plastic when wet; continuous clay films; peds are smaller as depth increases; residue on fingers quickly turns white or light gray; a few, large, rounded grains of quartz; few fine roots between peds; small areas of pure clay; acid; gradual, wavy boundary.

Cg—36 inches +, gray (N 6/0 and 10YR 6/1) sandy clay; common, fine, distinct mottles of red (2.5YR 5/8 to 6/8), yellowish brown (10YR 5/6), and light gray (N 7/0); weak, fine, subangular blocky structure; sticky when wet; acid.

The color of the A or Ap horizon ranges from black to gray and depends on the content of organic matter. The Ap horizon is loam to sandy loam. It is 5 to 10 inches thick in most places but ranges from 3 to 16 inches in thickness. The amount and prominence of the brown mottling range from few and distinct to many and prominent, but in many places mottling does not occur, and the B horizon is gleyed and gray. In some places a few red mottles are present in the lower part of the B horizon. The B horizon for Grady soils that have a thin surface layer is generally heavy sandy clay to clay that lacks mottling.

McColl series.—Profile 1 mile north of Lees and 200 yards northwest of Mt. Zion Church in a cultivated field:

Ap—0 to 6 inches, dark-gray (7.5YR 4/0) and very dark gray (7.5YR 3/0) heavy loam; weak, fine, subangular

blocky structure; friable when moist and fairly sticky when wet; many fine roots; acid; abrupt boundary.

B2g—6 to 12 inches, gray (5Y 6/1) clay; few, fine, distinct mottles and streaks of brownish yellow; weak, fine to medium, subangular blocky structure; firm to very firm when moist, sticky and plastic when wet, hard when dry; a few, large, rounded grains of quartz sand; few fine roots; acid; gradual boundary.

B3—12 to 28 inches, strong-brown (7.5YR 5/8) clay and some lenses of heavy sandy loam; weak, fine, subangular blocky structure; very friable; many, coarse, prominent, vertical streaks of gray (5Y 6/1) sandy clay; weak, medium, subangular blocky structure; firm when moist, sticky and plastic when wet; few, fine, prominent, red (2.5YR 4/8) mottles; few, large, poorly formed, brittle concretions of yellowish red (5YR 4/8); some plinthite; acid; gradual boundary.

IIBt—28 inches +, mottled light-gray (2.5Y 7/0), yellow (2.5Y 7/8), red (10R 4/8), and strong-brown (7.5YR 5/8) sandy clay loam; contains gray sandy clay; weak, fine, subangular blocky structure to massive (structureless); friable to firm when dry, sticky when wet; some plinthite; a few soft concretions; acid.

The color of the A horizon ranges from very dark gray to gray and depends on the content of organic matter. The surface layer is generally loam or sandy loam but is fine sandy loam in a few places. The loam surface layer is 3 to 9 inches thick, and the sandy loam surface layer is 6 to 9 inches thick. The strong-brown material that occurs at a depth of 15 to 30 inches has a few to many grayish mottles in some places. Red mottles also occur in places. A layer of material coarser textured than the rest of the profile occurs in some places at a depth of 30 to 70 inches. This material developed from parent material unlike that of the rest of the profile.

Myatt series.—Profile 1 mile south of the Branchville bridge in an idle field:

Ap—0 to 6 inches, dark-gray (10YR 4/1) loamy sand; weak, fine, granular structure; very friable; many fine roots; acid; abrupt boundary.

A2—6 to 9 inches, gray (5Y 5/1) loamy sand to sandy loam; weak, fine, granular structure; very friable; acid; clear boundary.

B2g—9 to 28 inches, gray (N 5/0) sandy clay loam; weak, medium, subangular blocky structure to massive (structureless); friable; few fine roots in upper part; acid; clear boundary.

IIC—28 inches +, light-gray (5Y 7/2 and 7/1) sand; single grain (structureless); loose.

The A horizon ranges from 8 to 20 inches in thickness and from dark gray to very dark gray or almost black in color. Slopes range from 0 to 2 percent. The B horizon is mottled with yellowish brown in places where Myatt soils grade toward Izagora soils. The subsoil generally ranges from sandy clay loam to sandy loam, but it is loamy sand in a few areas that are too small to be mapped separately.

Plummer series.—Profile 3 miles east of Govan and one-half mile north of Horsepen Bay in a wooded area:

O1—½ inch to 0, gum leaves and decaying organic debris.

A1—0 to 6 inches, black (5Y 2/1) to very dark gray (5Y 3/1) loamy sand; weak, fine, granular structure; very friable; many fine roots; high content of organic matter; acid; abrupt boundary.

A2—6 to 9 inches, gray (5Y 5/1) loamy sand; weak, fine, granular structure; very friable; few roots; acid; gradual boundary.

Cg—9 to 50 inches +, gray (5Y 6/1) to light-gray (5Y 7/1) loamy sand or sand; single grain (structureless); loose; acid.

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The A1 horizon ranges from 2 to 6 inches in thickness and from black to dark gray in color. In some places a few strong-brown mottles occur in the B horizon. A layer of material finer textured than the rest of the profile occurs in some places at a depth of 30 to 60 inches. This material developed from parent material unlike that of the rest of the profile.

Rains series.—Profile 2½ miles south of Farrells Crossroads in cutover woodland:

O1—½ inch to 0, decaying organic debris.

A1—0 to 6 inches, black (2.5Y 2/0) loamy sand or sandy loam; weak, fine, crumb structure; very friable; many grains of white sand; many fine roots; acid; clear, wavy boundary.

A2—6 to 9 inches, dark-gray (10YR 4/1) sandy loam; weak, fine, granular structure; very friable; many fine roots; acid; clear, wavy boundary.

A3—9 to 15 inches, gray (5Y 6/1) loamy sand; weak, fine, crumb structure; very friable; acid; clear, smooth boundary.

B21g—15 to 27 inches, gray (7.5YR 6/0) light sandy clay loam; few, fine, faint mottles of brownish yellow (10YR 6/8); weak, medium, subangular blocky structure to massive (structureless); very friable; a few lenses of sand; acid; gradual, wavy boundary.

B22g—27 to 39 inches, gray (5Y 6/1) sandy clay loam; few, fine, faint mottles of pale olive (5Y 6/3); weak, medium, subangular blocky structure to massive (structurelsss); very friable; a few lenses of sand; acid; gradual, wavy boundary.

B3g—39 to 55 inches, gray (5Y 6/1) sandy loam to sandy clay loam; few, fine, faint mottles of pale olive (5Y 6/4); massive (structureless); a few lenses of sand; acid; gradual, wavy boundary.

Cg—55 to 60 inches +, gray (5Y 6/1) sandy clay loam to sandy clay; many, coarse, prominent mottles of yellow (10YR 7/8) and brownish yellow (10YR 6/8) and few, fine, faint mottles of red (2.5YR 5/8); massive (structureless); a few lenses of sand; acid.

The A horizon ranges from 12 to 25 inches in thickness. The color of the A1 horizon ranges from black to gray and depends on the content of organic matter. The A1 horizon is commonly loamy sand, but it is sandy loam in many places. The subsoil ranges from sandy clay loam to sandy loam. The olive mottles range from few and faint to common and distinct.

Humic Gley soils

The Humic Gley great soil group consists of poorly drained or very poorly drained hydromorphic soils. These soils have moderately thick, dark-colored, organic-mineral horizons that are underlain by gleyed mineral horizons. Gleization was the main process of soil development.

The soils have formed in acid marine sediments in areas where the level of ground water was fluctuating but was fairly high, and runoff was very slow. The forest cover was chiefly loblolly pine, water-tolerant oak, sweetgum, blackgum, red maple, and yellow-poplar.

The Humic Gley soils in Bamberg County are in the Bayboro, Okenee, Portsmouth, and Rutlege series. These soils are very poorly drained and have a thick, dark-gray or black surface layer. Their subsoil is gray sandy loam to sandy clay loam. In forested areas the A horizon is 5 to 15 percent organic matter. The Okenee soils developed on stream terraces. The Bayboro, Portsmouth, and Rutlege soils developed in depressional areas of the Coastal Plain upland.

Bayboro series.—Profile 3 miles southeast of Olar and 100 feet north of State Route 64, in the southeastern part of a large Carolina bay:

O1—1 inch to 0, partly decomposed forest litter.
A1—0 to 8 inches, black (7.5YR 2/0) loam; weak, medium, granular structure; friable; many fine to medium roots; high content of organic matter; ground water at a depth of 3 inches; acid; clear, wavy boundary.
A3—8 to 11 inches, very dark gray (10YR 3/1) loam; weak, medium, granular structure; somewhat high content of organic matter; friable when moist, slightly sticky when wet; many fine roots; acid; clear, smooth boundary.
B1g—11 to 14 inches, dark-gray (10YR 4/1) silty clay loam; few, fine, distinct mottles of yellowish brown (10YR 5/8); weak, medium, subangular blocky structure; friable to firm when moist, slightly sticky and plastic when wet; clay films and stains of organic material on ped faces; few, large, rounded grains of quartz sand; many roots; material from the A horizon in old root channels; acid; gradual, smooth boundary.
B2g—14 to 39 inches, gray (10YR 5/1) sandy clay or clay; common, fine, distinct mottles of yellowish brown (10YR 5/8) and brownish yellow (10YR 6/8); weak, fine to medium, subangular blocky structure in upper part of horizon and massive (structureless) in lower part; very firm when moist, sticky and plastic when wet; clay films on ped faces; a few, large, rounded grains of sand; few roots; material from the A horizon in old root channels; acid; gradual boundary.
C1g—39 inches +, dark-gray (10YR 4/1) to gray (10YR 5/1) silty clay loam to sandy clay loam; massive (structureless); firm when moist, sticky and plastic when wet; a few, large, rounded grains of quartz sand; contains lenses of sand and coarser material.

The A1 horizon generally is black, but it ranges from black to very dark gray in some places. The entire A horizon generally ranges from 10 to 18 inches in thickness but in places near the poorly drained Coxville or Rains soils, it is as thin as 7 inches. The subsoil ranges from gray to dark gray in color and from heavy sandy clay to silty clay or clay in texture.

Okenee series.—Profile 1½ miles southeast of Little Swamp Church in woods:

O1—2 inches to 0, decaying gum leaves and twigs.
A1—0 to 10 inches, black (N 2/0) loam; weak, fine, granular structure; very friable; many fine and medium roots; acid; clear boundary.
A12—10 to 18 inches, black (10YR 2/1) sandy loam; weak, fine, granular structure; very friable; many fine and medium roots; acid; gradual boundary.
A21—18 to 22 inches, very dark gray (10YR 3/1) loamy sand; weak, fine, granular structure; very friable to loose; few fine roots; acid; clear boundary.
A22—22 to 26 inches, grayish-brown (10YR 5/2) loamy sand; weak, fine, granular structure; very friable to loose; acid; abrupt boundary.
B2—26 to 34 inches, very dark gray (N 3/0) sandy clay; massive (structureless); firm; contains balls of sandy clay loam; acid; clear boundary.
C—34 inches +, grayish-brown (10YR 5/2) loamy sand to sand; loose; contains balls of very dark brown (10YR 2/2) sandy clay loam.

The A horizon ranges from 8 to 26 inches in thickness, but it generally is between 18 to 20 inches thick. Near the poorly drained Myatt soils, the black surface layer is thinner than normal. The subsoil generally is a sandy clay loam, but in some places it ranges from sandy clay loam to light sandy clay or sandy loam.

Portsmouth series.—Profile 1 mile southeast of Brier Creek Church in a forested Carolina bay:

O1—2 inches to 0, pine and cypress needles, sphagnum moss, and decaying organic debris.
A1—0 to 10 inches, black (N 2/0) loam; weak, fine to medium, granular structure; very friable; many fine to medium roots; very high content of organic matter; acid; abrupt boundary.
A2—10 to 12 inches, very dark gray (10YR 3/1) sandy loam; weak, fine, subangular blocky and granular structure; very friable; many fine roots; somewhat high content of organic matter; acid; clear boundary.
B1g—12 to 19 inches, gray (10YR 6/1) sandy loam; few, fine, distinct mottles of brownish yellow (10YR 6/8); weak, fine to medium, subangular blocky and angular blocky structure; very friable; acid; clear boundary.
B2g—19 to 44 inches, gray (10YR 6/1) sandy clay; common, fine, distinct mottles of strong brown (7.5YR 5/8), yellowish brown (10YR 5/8), and light olive brown (2.5Y 5/6); massive (structureless); firm when moist, plastic when wet; acid; ground water at a depth of 21 inches; diffuse boundary.
C—44 to 60 inches +, gray (10YR 5/1) sandy clay; many, coarse, distinct mottles of brownish yellow; massive (structureless); firm; sand lenses common; acid.

The A1 horizon ranges from 8 to 20 inches in thickness and from loam to sandy loam in texture. It generally is black but ranges from black to very dark gray in some places. The black A horizon of the sandy loam areas generally ranges from 8 to 14 inches in thickness. The subsoil ranges from sandy loam to sandy clay and is free of mottles in places.

Rutlege series.—Profile 1½ miles west of Free Gift Church in a wet depression:

O1—½ inch to 0, matted cane leaves and cypress needles and decaying organic debris.
A11—0 to 8 inches, black (7.5YR 2/0) loamy sand; weak, fine, granular structure; very friable; high content of organic matter; many roots; coarse grains of white sand; acid; gradual boundary.
A12—8 to 10 inches, black (5YR 2/1) loamy sand; weak, fine, granular structure; very friable; high content of organic matter but lower than in horizon above; many fine roots; acid; abrupt boundary.
Bg—10 to 36 inches +, gray (10YR 5/1 or 6/1) loamy sand or sand; single grain (structureless); loose.

The A horizon ranges from black to very dark gray. It ranges from 8 to 24 inches in thickness but generally is about 16 to 20 inches thick. In some places the subsoil has brown stains. The subsoil ranges from sand to loamy sand, and a discontinuous layer of finer textured material occurs in some places at a depth of 30 to 45 inches.

Planosols

The Planosol great soil group consists of soils that have a leached (eluviated) surface horizon and a compact claypan subsoil. The soils developed in nearly flat or depressional areas.

Soils of the Leaf series are the only Planosols in Bamberg County. They have a thin, dark-gray A horizon that abruptly overlies a firm or compact clay or sandy clay subsoil. Leaf soils are poorly drained. They have developed in clayey sediments that were laid down along streams and later formed nearly level or depressional stream terraces.

Leaf series.—Profile 11 miles south-southeast of Bamberg, on a terrace of the Edisto River 2 miles south of Branchville:

A1—0 to 5 inches, gray (10YR 5/1) loamy sand or sandy loam; few, fine, faint mottles of strong brown (7.5YR 5/8); very friable; many fine roots; acid; abrupt, smooth boundary.

B21g—5 to 9 inches, gray (5Y 5/1) sandy clay; moderate, medium, subangular blocky structure; firm; continuous clay films; many roots along ped faces; acid; clear, wavy boundary.

B22g—9 to 27 inches, gray (N 5/0) sandy clay; common, medium, distinct mottles of yellowish brown (10YR 5/8 or 5/6); moderate, medium, angular blocky structure; very firm to firm; acid; clear, smooth boundary.

IIC—27 inches +, gray (5Y 6/1) sand; single grain (structureless); loose; a few small flakes of mica.

The A1 horizon ranges from very dark gray to gray in color and from loamy sand to fine sandy loam in texture. Except for the thin-surface phase, the surface layer ranges from 5 to 10 inches in thickness. It is 2 to 4 inches thick in the thin-surface phase. The B horizon of Leaf soils is firm or very firm and ranges from heavy sandy clay to clay. It is mottled with red in some places. The depth to the sandy substratum, or IIC horizon, ranges from 24 to 42 inches but commonly is 30 to 36 inches.

Regosols

The Regosol great soil group is made up of soils that have few if any clearly defined horizons. These soils are developing from deep unconsolidated mineral deposits. In Bamberg County these deposits are marine sand.

The Regosols in Bamberg County are in the Eustis, Klej, and Lakeland series. The soils have a weakly developed profile of sand or loamy sand that is mainly quartz. Their Ap horizon is dark brown or very dark gray, but the A1 horizon, or the surface layer in undisturbed areas, is dark gray or grayish brown. In the Lakeland and the Eustis soils, the C2 horizon is strong brown or yellowish red. These colors are more noticeable where the soils are shallow and the solum consists of loamy sand. The Eustis soils are redder than the Lakeland soils. The Klej soils are somewhat poorly drained and have a very dark gray A1 horizon and a thick leached C1 horizon. Below a depth of 20 to 30 inches, gleying has dominated the processes of soil formation.

Eustis series.—Profile 3 miles east of Bamberg in a field that was recently planted to pines and has slopes of 0 to 6 percent:

Ap—0 to 6 inches, dark-brown (10YR 4/3) sand; weak, fine, granular structure; very friable; many fine and medium roots; acid; abrupt boundary.

C1—6 to 18 inches, strong-brown (7.5YR 5/6) sand; structureless to weak, fine, granular structure; very friable to loose; many fine and medium roots; acid; gradual boundary.

C2—18 to 46 inches, yellowish-red (5YR 5/8) sand; structureless to weak, fine, granular structure; very friable to loose; a few fine and medium roots; acid; gradual boundary.

C3—46 to 75 inches, very pale brown (10YR 7/4) sand; structureless; loose; acid; clear boundary.

IIC4—75 inches +, mottled strong-brown, gray, red, yellowish-brown, and purplish, slightly cemented sandy loam and sandy clay loam; massive (structureless); many grains of coarse quartz sand; acid.

The surface layer is sand or loamy sand. In the loamy sand the depth to the yellowish-red C2 horizon generally is 10 to 15 inches, but in the sand this depth is 10 to 30 inches. The C3 horizon generally is 46 to 60 inches from the surface, but it is as little as 36 inches from the surface in some places. In some places too small to be mapped separately, a shallow Eustis soil occurs. In this soil the finer textured layers, generally sandy loam or sandy clay, are at a depth of 30 to 36 inches. Eustis soils occupy slopes of 0 to 15 percent.

Klej series.—Profile 2½ miles east of Hunters Chapel Church in a field of recently planted pines:

Ap—0 to 7 inches, very dark gray (N 3/0) loamy sand; weak, fine, granular structure; very friable; many fine roots; acid; abrupt boundary.

C1—7 to 19 inches, light olive-brown (2.5Y 5/4) loamy sand; weak, fine, granular structure; very friable; many fine roots; acid; gradual boundary.

C2—19 to 27 inches, light yellowish-brown (2.5Y 6/4) loamy sand; many, fine, faint mottles of strong brown (7.5YR 5/8) and light brownish gray (2.5Y 6/2); weak, fine, granular to subangular blocky structure; very friable; few roots; acid, gradual boundary.

C3g—27 to 36 inches, mottled light brownish-gray (2.5Y 6/2) to (10YR 6/2), light olive-brown (2.5Y 5/4), yellowish-brown (10YR 5/6), and gray (10YR 6/1) loamy sand; mottles are many, coarse, and distinct; very friable; massive (structureless); acid; abrupt boundary.

C4g—36 inches +, dark grayish-brown (10YR 4/2) loamy sand to sand; massive (structureless); very friable to loose.

The color of the Ap horizon ranges from black to dark gray and depends on the content of organic matter. The solum ranges from loamy sand to sand and is distinctly mottled, generally at a depth of 18 to 24 inches. In some places Klej soils occur on terraces, where they generally have a coarser textured surface layer than normal Klej soils and contain more rounded sand grains.

Lakeland series.—Profile 1 mile east of Springtown Church:

Ap—0 to 5 inches, dark-gray (10YR 4/1) sand; weak, fine, granular structure; very friable; many fine roots; acid; clear, wavy boundary.

A12—5 to 7 inches, grayish-brown (10YR 5/2) sand; weak, fine, granular structure; very friable; many fine roots; acid; clear, wavy boundary.

C1—7 to 38 inches, light yellowish-brown (10YR 6/4) sand; structureless; loose; a few roots; acid; abrupt, wavy boundary.

C2—38 to 43 inches, strong-brown (7.5YR 5/6) loamy sand; weak, fine to medium, granular structure to massive (structureless); very friable; acid; clear, wavy boundary.

C3—43 to 60 inches, reddish-yellow (7.5YR 6/6) loamy sand to sand; few, medium mottles of light gray (10YR 7/1) and yellowish red (5YR 5/8); yellowish-red mottles are loamy sand; structureless; acid; clear, wavy boundary.

C4—60 inches +, very pale brown (10YR 7/3) sand; single grain (structureless); loose; a few grains of yellowish sand; acid.

The Ap horizon ranges from dark gray to grayish brown. The solum generally is fine sand and sand, but it ranges from fine sand to loamy sand in a few places. The depth to the C horizon is 7 to 30 inches. In the moderately shallow Lakeland soils that have been mapped in this county, a IIC horizon of sandy loam or sandy clay loam occurs at a depth of 30 to 42 inches. The slopes of Lakeland soils range from 0 to 15 percent. Also mapped is Lakeland sand, terrace, 0 to 6 percent slopes. In this soil the C horizon is paler yellow than that in the moderately shallow Lakeland soils, and the sand grains are more rounded and generally coarser. At a depth of 30 to 42 inches is a IIC horizon that has coarser or finer textured material than the IIC horizon in the moderately shallow Lakeland soils.

General Nature of the County

This section describes the physiography, drainage, and water supply and geology of the county and discusses past and present agriculture. Also discussed are transportation and industry, population, electric power and telephones, schools, recreation, and climate.

Physiography, Drainage, and Water Supply

Bamberg County is within the Atlantic Coastal Plain. Most of the county west of U.S. Highway No. 301 is in the upper Coastal Plain, but the greater part of the county is in the lower Coastal Plain.

Most of the county in the upper Coastal Plain is nearly level or gently sloping. Only a small total acreage is wet enough to be unsuitable for farming, but wet depressions called Grady ponds commonly occur. These wet areas are 5 to 50 acres in size.

East of U.S. Highway No. 301, the county is nearly flat, as is typical of the lower Coastal Plain. Much of this level area is depressional and poorly drained. The largest poorly drained areas are in the southeastern part of the county, east of Hunters Chapel School.

In the nearly level central part of the county, there are many shallow depressions that range from only a few acres to a square mile in size. These depressions are called Carolina bays. They are roughly elliptical, or egg shaped, and arranged in the same direction. Their larger ends face the northwest, and their smaller ends face the southeast. These bays are surrounded by sandy areas that are 3 to 10 feet higher than the depressions. Most of the depressions are wet the year round, and some are swamps covered with a heavy growth of cypress and gum. In several places saucerlike depressions that have no outlets resemble sinkholes. A few of these depressions are lakes filled with water, and most of the rest are swampy.

The relief of the county varies widely. It is gently sloping to somewhat hilly in the western and northwestern two-fifths of the county. The middle, southern, and eastern parts are generally level but are depressional in places.

The elevation of Bamberg County ranges from 100 to as much as 270 feet above sea level. Slope is gradual from the western boundary to the southeast. The original plain has not been dissected much by streams. Streams generally flow in poorly defined channels and are tortuous and sluggish. All of them are bordered by strips that range in width from 100 feet along the smallest streams to as much as 2 miles along the South Fork Edisto River. These strips were formed when the streams overflowed.

The largest streams are in the upper Coastal Plain. In the eastern part of the county, there are a few small streams and large areas with no streams at all.

All of the surface drainage in the county flows into the South Fork Edisto River, the Salkehatchie River, the Little Salkehatchie River, and their tributaries. The South Fork Edisto River flows along the northeastern boundary of the county; the Salkehatchie River flows along the southwestern boundary; and the Little Salkehatchie River divides the county about equally as it flows from the northwest to the southeast.

Streams, ponds, and drilled wells are the chief sources of water for livestock. Water used for irrigation is taken from streams and ponds. Dug or drilled wells supply ample water to rural homes.

Geology

The fifth marine terrace (Sunderland) occupies most of Bamberg County. The old shoreline of this terrace is 170 feet above the present sea level. In other parts of the county are the sixth (Coharie) and the seventh (Brandywine) terraces. The old shoreline of the sixth terrace is about 215 feet above the present sea level, and that of the seventh marine terrace is about 270 feet. The southeastern two-thirds of the county is in the lower Coastal Plain, and the northwestern third of the county is in the upper Coastal Plain, or the Aiken Plateau. The stream terraces of the South Fork Edisto River are younger than the marine terraces (*2*).

Agriculture

This subsection discusses the agricultural history and land use of Bamberg County.

History

Bamberg County has been chiefly agricultural since it was first settled. At first only the better drained soils were farmed. Corn and wheat were the main crops, but oats, rice, hay, and several other crops were grown for use on the farm. Indigo was important before the Revolutionary War. In 1794 the cotton gin was brought in, and the acreage in cotton increased steadily. Since early settlement, farmers have raised much livestock, mainly hogs and cattle. Turpentine, lumber, shingles, staves, and other products of the forest were exported. The wooded areas were also used for pasture.

By the end of the Civil War, the land was badly run down, and much of it was abandoned. Only a few farm implements and a small number of livestock were left. Cotton was grown because it could be sold for cash. As the acreage in cotton increased, less livestock was produced, and less corn, wheat, oats, grasses, and other crops was needed on the farms. Because soil management was poor, crop yields were low unless commercial fertilizer was used. During the long period of depression that followed the war, many farmers sold their farms and moved away or rented them and moved into towns. Shortly after 1890, the price of cotton fell below the cost of production, but bright-leaf tobacco was introduced and was profitable. Most farmers, however, continued to grow cotton until it again became profitable.

The farmers did not use systematic rotation of crops. Cotton followed cotton, and corn followed corn. No cover crops were grown to supply organic matter. Consequently, the two-crop system of farming lowered the productivity of the soils and, in the western part of the county, increased the hazard of erosion.

By about 1920 small amounts of asparagus, watermelons, and cantaloups were grown for sale at outside markets. Today asparagus is not grown, but the county produces watermelons, cantaloups, cucumbers, tomatoes, and polebeans. A small acreage is in peaches and pecans. The polebeans are grown in the Little Swamp section.

TABLE 12.—*Agricultural statistics for stated years*

Item	1929	1939	1949	1959
Cropland harvested—acres	72, 432	86, 139	80, 209	72, 381
Farms—number	[1] 1, 992	[1] 1, 643	[1] 1, 530	898
Average size of farm—acres	[1] 72. 4	[1] 102. 4	[1] 137. 0	174. 8
Hay—acres	3, 183	8, 953	2, 149	3, 859
Cotton—acres	32, 615	20, 464	21, 933	9, 260
Corn harvested for grain—acres	26, 482	37, 243	28, 837	18, 870
Oats, threshed—acres	731	3, 511	3, 671	7, 166
Pasture—acres	10, 497	5, 421	18, 259	24, 019
Cattle and calves—number	2, 749	[2] 3, 223	[1] 5, 367	9, 389
Milk cows—number	1, 633	2, 076	2, 636	2, 792
Hogs and pigs—number	5, 566	[3] 11, 028	[1] 13, 835	17, 094

[1] Figure for 1 year later than year at head of column.
[2] 3 months or older.
[3] 4 months or older.

The dairies in the county total 31. According to the 1959 Census of Agriculture, 50.3 percent of the farm income was from livestock and livestock products, and 49.7 percent was from field crops, fruits, nuts, and vegetables.

A planned program for land use and management began when the Edisto Soil Conservation District was organized in 1937. This district consisted of Allendale, Aiken, Barnwell, Bamberg, and Orangeburg Counties. During the past several years, all of these counties except Bamberg have formed separate districts, but the county is still called the Edisto Soil Conservation District. The program for land use has considerably changed the farming in the county, mainly by increasing livestock production and decreasing the acreage in row crops.

Land use

Table 12 tells much about how the land in Bamberg County has been used. For stated years, this table lists acres of cropland, size and number of farms, acres of hay, cotton, corn, and oats, acres of pasture, and numbers of livestock. The statistics were obtained from the U.S. Census of Agriculture.

Between 1939 and 1959, the acreage of cropland decreased markedly. This decrease was the result mainly of converting cropland to woodland, increasing pasture, and placing cropland in the soil bank. As soil-bank contracts expire, much land probably will be returned to cultivation.

In spite of the decrease in cropland, the land in the county used for soybeans has increased greatly in recent years. Soybeans are grown as a cash crop that is bought for its oil. Most of the soils on uplands are suited to soybeans. Since 1954 the total acreage in soybeans and the yield per acre have increased greatly. In 1954 the total area in soybeans was 1,950 acres, and the yield per acre was 6.2 bushels. By 1961 the area in soybeans increased to 20,500 acres, and the yield per acre to 25.0 bushels. This increase is the result of improving management and the plant varieties used. In 1961 the value of the soybean crop in the county was more than a million dollars.

For many years the trend has been for the number of farms in the county to decrease and the average size of farms to increase. This trend is characteristic of counties in which raising livestock is increased. Table 12 shows that the acreage in the main crops has decreased while the acreage in pasture and the number of livestock have increased.

Transportation and Industry

Federal and State highways cross the county. All sections of the county can be reached by farm-to-market roads that are surfaced with tar and gravel and are well kept. The railroads in the county operate enough lines to provide adequate service for shipping freight. These railroads have sidings in all the towns they serve.

Although Bamberg County is not industrial, in the county there are a textile mill, a garment factory, a furniture factory, and two veneer plants. An abundance of clean water, a necessity for many industries, is available. Water can be easily obtained from deep wells, and the supply of surface water is dependable. Water can also be obtained from the large streams that are well distributed throughout the county. The South Fork Edisto River flows through the upper part of the county; the Little Salkehatchie River and Lemon Creek run through the central part; and the Big Salkehatchie River is in the southern part. Building sand is mined at Embree. Some of the pits that have been dug during this mining have been filled with water and stocked with fish.

Population

The population of Bamberg County has been decreasing for the past three decades. In 1930 the population of the county was 19,410, but by 1940 it had decreased 4 percent, or to 18,643. By 1950 the population had decreased to 17,533, or 6 percent less than that in 1940. By 1960 the population of the county had fallen to 16,274.

In 1960 the population was 25.6 percent rural farm, 35.6 percent rural nonfarm, and 38.8 percent urban. Since 1950 the rural-nonfarm population had increased almost 17 percent, and the urban population had increased almost 6 percent. In that 10-year period the rural-farm population decreased almost 23 percent.

In 1960 the population of the largest towns in the county was Denmark, 3,221; Bamberg, 3,081; and Ehrhradt, 482.

All of the people in Bamberg County are native-born Americans. Home and farm ownership is widespread and is increasing.

Electric Power and Telephones

Electric power is available in all communities, and small electric motors furnish much of the power used on farms. Most rural homes have electric stoves, radios, and television sets. Telephone service is available in all cities, towns, and smaller communities, and to many farms along the main roads.

Schools

The schools were consolidated in 1952, and the children are now transported by bus to the eight elementary schools and the four high schools in the county. A college and a trade school are located at Denmark. The Carlysle Military School in Bamberg is a private school for boys.

Recreation

Bamberg County has facilities for fishing, hunting, water skiing, picnicking, and other recreation. Fishing is available in clear-water streams, in rivers, and in ponds. Quail and deer hunting is good throughout most of the county. At the State park in the southeastern part of the county, vacationers can swim, picnic, hike, or view the relics that have been preserved at the site of a Civil War battle. There is a golf course in Denmark. The Edisto River and Clear Pond provide boating, water skiing, fishing, picnicking, and sites for summer cottages. Clear Pond is a natural lake in which the first successful experiments were held on the submarine torpedo.

Climate [7]

The climate of Bamberg County is mild and temperate; precipitation is well distributed throughout the year. Weather from day to day largely depends on moving pressure systems, though the air masses in summer completely change in the county only occasionally, and air masses from the sea persist for extended periods.

The nearest weather station with available records of wind, humidity, and sunshine is at Columbia, S.C. Other records of climate at Blackville, S.C., were used in preparing tables 13, 14, and 15. The records at Columbia indicate that, during most of the year, the prevailing winds in Bamberg County are from the southwest, but that late in summer and early in fall they are from the northeast. The average speed of the wind is about 8 miles per hour. In recent years the strongest wind lasting 1 minute was 60 miles per hour in the Columbia area. The average relative humidity at 1:00 p.m. ranges from a maximum of 58 percent in winter to a minimum of 47 percent in April and May. Based on observations taken daily at 1:00 a.m., 7:00 a.m., 1:00 p.m., and 7:00 p.m., the average relative humidity for the year is approximately 70 percent.

On the average, Bamberg County has 77 days with 0.10 inch or more of rain, about 34 days with 0.5 inch or more, and 16 days with 1.0 inch or more. The sun is visible for 65 percent of the daylight hours in a year. Percentages of visible sunshine range from a percentage high in the fifties in winter to low in the seventies in summer. About 2 percent of the time clouds are below 500 feet, and about 6 percent of the time they are below 1,000 feet. The heaviest annual rainfall in this general area during the last 15 years was 71.19 inches at Blackville, S.C., in 1949. In 1954 Blackville had the least annual rainfall in the general area when 27.45 inches of rain fell.

Summers are usually long; warm weather begins in May and lasts into September. Breaks in the heat during midsummer are relatively few. A typical summer has about 6 days with a maximum temperature of 100° F. or more.

[7] By NATHAN KRONBERG, State climatologist, U.S. Weather Bureau, Columbia, S.C.

TABLE 13.—*Temperature and precipitation at Blackville, Barnwell County, S.C.*

Month	Temperature				Precipitation			
	Average daily maximum	Average daily minimum	2 years in 10 will have at least 4 days with—		Average total	1 year in 10 will have—		Average snowfall
			Maximum temperature equal to or higher than—	Minimum temperature equal to or lower than—		Less than—	More than—	
	°F.	°F.	°F.	°F.	*Inches*	*Inches*	*Inches*	*Inches*
January	60	38	78	20	2.7	1.1	4.8	0.2
February	62	39	78	21	3.7	1.2	6.4	.5
March	68	44	82	28	4.2	1.5	7.4	.1
April	77	52	87	38	3.7	1.6	7.4	0
May	85	60	93	48	3.5	1.4	6.0	0
June	91	68	97	58	4.3	1.9	6.5	0
July	92	70	97	63	5.0	2.2	8.5	0
August	91	69	98	62	4.9	2.4	10.0	0
September	87	65	94	52	4.1	1.7	7.1	0
October	78	54	88	39	2.7	.4	5.2	0
November	68	43	80	27	2.5	.4	4.5	[1]
December	59	37	75	22	3.3	1.0	5.8	.1
Year	76	53	[2] 103	[3] 17	44.6	33.5	51.8	.9

[1] Trace; less than 0.05 inch.
[2] Average annual highest temperature.
[3] Average annual lowest temperature.

TABLE 14.—*Probability of last freezing temperature in spring and first in fall*

[All data from Blackville, Barnwell County, S.C.]

Probability	Dates for given probability and temperature		
	24° F. or less	28° F. or less	32° F. or less
Spring:			
1 year in 10 later than	Mar. 5	Mar. 22	Apr. 8
2 years in 10 later than	Feb. 25	Mar. 15	Mar. 31
5 years in 10 later than	Feb. 9	Mar. 1	Mar. 17
Fall:			
1 year in 10 earlier than	Nov. 21	Nov. 12	Nov. 3
2 years in 10 earlier than	Nov. 27	Nov. 17	Nov. 8
5 years in 10 earlier than	Dec. 8	Nov. 27	Nov. 18

TABLE 15.—*Minimum number of drought days to be expected in Bamberg County, for five different moisture-storage capacities and four different probabilities*

Month [1]	Probability	Minimum number of drought days if soil has moisture-storage capacity of—[2]				
		1 inch	2 inches	3 inches	4 inches	5 inches
April	1 in 10	16	9	0	0	0
	2 in 10	14	6	0	0	0
	3 in 10	12	0	0	0	0
	5 in 10	10	0	0	0	0
May	1 in 10	26	25	20	15	9
	2 in 10	23	21	16	11	0
	3 in 10	21	18	14	8	0
	5 in 10	18	24	9	0	0
June	1 in 10	22	20	20	18	16
	2 in 10	20	17	16	14	12
	3 in 10	18	15	13	11	9
	5 in 10	15	11	8	6	0
July	1 in 10	21	18	17	16	15
	2 in 10	18	14	13	12	10
	3 in 10	15	11	10	8	7
	5 in 10	11	6	5	0	0
August	1 in 10	19	15	11	10	8
	2 in 10	16	11	7	5	0
	3 in 10	14	8	5	0	0
	5 in 10	11	0	0	0	0
September	1 in 10	22	20	16	15	13
	2 in 10	19	16	12	10	7
	3 in 10	16	13	8	6	0
	5 in 10	13	7	0	0	0
October	1 in 10	26	25	23	21	17
	2 in 10	22	19	15	12	9
	3 in 10	19	15	10	5	0
	5 in 10	15	8	0	0	0

[1] Days in January, February, March, November, and December are not shown, because crops are rarely damaged by drought in these months.

[2] Storage capacity of soils is expressed as the depth of water that a soil can hold and make available to plants.

Generally, 2 of these days are in June, 3 in July, and 1 in August, but in an occasional year a day in spring or fall has a temperature of 100° or more. On the average, 80 days have a temperature of 90° or more. During most summers the temperature rises above 100°.

Summer is the rainiest season of the year in Bamberg. Rainfall in the three summer months is 32 percent of the annual total. The rains are largely in local thunderstorms. Once or twice in 10 years Bamberg has tropical storms, but the strong winds and heavy rain cause only minor damage. These storms are a threat from midsummer to late in fall, but they are most likely in September (*4*).

Fall is a transition season. Summer weather lasts until early in September and is followed by Indian summer. Prewinter cold spells begin in November. On the whole, fall is the most pleasant season. It is especially enjoyable from late in September until early in November, for in that peroid rainfall is light, the sunshine percentage is high, and the temperature is not extreme. About 5 times in the past 30 years, heavy to excessive rains and gusty gales from nearby tropical storms have occurred in September, but damage and casualties from these storms were negligible. Rainfall in fall is about 20 percent of the annual total (*4*).

Winters are mild and relatively short; freezing temperature is recorded on about one-third of the days. Although the chance of a snow flurry is good, only occasionally are there significant snowfalls that keep the ground covered for extended periods. In the past 30 years the temperature has fallen to 20° or below in 5 days, to 15° or below in 2 days, and to 10° or below in 1 day. Rains in winter are usually steady and amount to about 22 percent of the annual rain in the county (*4*).

In spring, the most changeable season of the year, the weather is frequently cold and windy in March and is generally warm and pleasant in May. Local thunderstorms and tornadoes are most likely in spring, but there have been only two tornadoes in Bamberg County during the past 40 years. Rainfall in spring amounts to 26 percent of the annual total (*4*).

The climate of Bamberg County is favorable for the crops commonly grown in the county and for minor crops. In order of their importance, the main crops or products related to agriculture in the county are cotton, livestock, vegetables, forest products, corn, and small grain. The soils in the county accumulate moisture during winter and spring and, at planting time, contain their full capacity of moisture. In addition, enough dry periods occur to permit tillage. The average freeze-free period, called the growing season, begins about March 17 and lasts until November 18. It amounts to about 245 days. Because of this long growing season, there is a period of weeks or even months during which crops can be planted and still have enough time to mature (*5*).

Normally, the amount and distribution of rainfall are sufficient for crop growth, but in some years rainfall is inadequate or excessive. In table 13 are listed, for each month in the year, extremely deficient amounts of rain and extremely excessive amounts that might occur once in 10 years. For example, table 13 shows that the average total rainfall for July is 5.0 inches, but one July in 10 years may have less than 2.2 inches and another July may have more than 8.5 inches (*4*).

Disastrous droughts occurred in the county in 1925 and in 1954, but partial droughts are much more frequent and

generally occur once or twice every 10 years. A recent Clemson College publication, "Agricultural Drought in South Carolina" (*12*), discusses drought in the State.

A drought occurs where there is no water available to plants in the soils. A drought day is a day in which no water is available. To determine the number of drought days, a water balance must be calculated from data on (1) the capacity of the soil to hold available water, (2) precipitation, and (3) the amount of water used or transpired by plants. A study of this kind shows that even in a normal year there are periods when rainfall does not supply the needs of most crops. Because these droughty periods occur in most years in most parts of the State, irrigation is needed for maximum crop production. During a severe drought, however, water may not be available for irrigation, or it may be available in only a small amount.

Estimates of the frequency of drought days in Bamberg County are listed in table 15. These estimates were obtained by the Penman method for computing the consumption of soil moisture both by plants and through evaporation or evapotranspiration. The total amount of stored moisture available to plants varies according to the kind of soil and the depth to which plant roots penetrate. The estimated number of drought days, therefore, is an average and will vary for different kinds of soils. The estimates listed in table 15 are for different depths, which represent five different moisture-storing capacities. For example, there is a fifty-fifty chance that a soil with a 2-inch storage capacity will have 6 drought days in Bamberg County in July. The chance is also fifty-fifty that a soil with a 4-inch storage capacity will have no drought days in July.

Glossary

Acidity. (See Reaction.)

Alluvium. Soil material, such as sand, silt, or clay, that has been deposited on land by streams.

Available moisture capacity. The difference between the amount of moisture in a soil at field capacity and the amount in the same soil at the permanent wilting point. Commonly expressed as inches of water per inch depth of soil.

Carolina bay. A swampy depression in which water-tolerant plants grow.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Colluvium. Soil material, rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Consistence, soil. Soil property that can be judged by the feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent; soil does not hold together in a mass.

Friable.—When moist, soil crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, soil crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, soil is readily deformed by moderate pressure but can be pressed into a lump; forms a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, soil adheres to other material and tends to stretch somewhat and pull apart, rather than to pull free from other material.

Cemented.—Hard and brittle; soil is little affected by moistening.

Flood plain. Nearly level land, consisting of stream sediments, that borders a stream and is subject to flooding unless protected artificially.

Gleization. The reduction, translocation, and segregation of soil compounds, notably of iron, usually in the subsoil or substratum, as a result of poor aeration and drainage; expressed in the soil by mottled colors dominated by gray. The soil-forming processes leading to the development of a gley soil.

Gleyed soil. A soil in which waterlogging and lack of oxygen have caused the material in one or more horizons to be neutral gray in color. The term "gleyed" is applied to soil horizons with yellow and gray mottling caused by intermittent waterlogging.

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes. These are the major soil horizons:

A horizon. A mineral horizon at the surface. It has an accumulation of organic matter, has been leached of soluble minerals and clay, or shows the effects of both.

B horizon. The horizon in which clay minerals or other material has accumulated, that has developed a characteristic blocky or prismatic structure, or that shows the effects of both processes.

C horizon. The unconsolidated material immediately under the true soil. In chemical, physical, and mineral composition it is presumed to be similar to the material from which at least part of the overlying solum has developed, unless the C designation is preceded by a Roman numeral.

A Roman numeral II preceding the symbol C indicates a lithologic discontinuity, or that the horizon is of material different from that from which the horizons above formed. The C horizon now includes the contrasting layers of unconsolidated material formerly designated as D.

Following are the symbols used in this report with the letters designating the master horizons, and the meaning of these symbols:

g—strong gleying.
p—plow layer.
t—illuvial clay.

Hydromorphic soils. Soils that have developed in the presence of excess water.

Infiltration. The downward entry of water into the immediate surface of the soil or other material, as contrasted with percolation, which is movement of water through soil layers or other material. The rate of infiltration is usually expressed in inches per hour.

Liquid limit. The moisture content at which a soil changes from a plastic to a liquid state.

Loam. Soil that contains approximately equal amounts of sand, silt, and clay.

Local alluvium. Alluvium that originates from the uplands. It occupies narrow strips along drainageways and is not subject to prolonged flooding.

Mottled. Irregularly marked with spots of different colors that vary in number and size (*8*). Mottling in soils usually indicates poor aeration and lack of drainage. Descriptive terms are as follows: Abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are these: *Fine,* less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension; *medium,* ranging from 5 millimeters to 15 millimeters (about 0.2 to 0.6 inch) in diameter along the greatest dimension; and *coarse,* more than 15 millimeters (about 0.6 inch) in diameter along the greatest dimension.

Parent material, soil. The horizon of weathered rock or partly weathered soil material from which soil has formed; horizon C in the soil profile.

Permeability, soil. The quality of a soil horizon that enables water or air to move through it. Terms used to describe permeability are as follows: *Very slow, slow, moderately slow, moderate, moderately rapid, rapid,* and *very rapid.*

Phase, soil. A subdivision of a soil type, series, or other unit in the soil classification system made because of differences in the soil that affect its management but do not affect its classification in the natural landscape. A soil type, for example, may be divided into phases because of differences in slope, stoniness, thickness, or some other characteristic that affects management.

Plastic limit. The moisture content at which a soil changes from a semisolid to a plastic state.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other dilutents that commonly shows as red mottles, usually in platy, polygonal, or reticulate, patterns. Plinthite changes irreversibly to a hardpan or to

irregular aggregates on repeated wetting and drying, or it is the hardened relict of the soft, red mottles. It is a form of the material that has been called laterite.

Poorly graded soil (engineering). A soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles in poorly graded soil material, density can be increased only slightly by compaction.

Profile, soil. A vertical section of the soil through all its horizons and extending into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil expressed in pH values. A soil that tests to pH 7.0 is precisely neutral in reaction because it is neither acid nor alkaline. An acid, or "sour," soil is one that gives an acid reaction; an alkaline soil is one that is alkaline in reaction. In words, the degrees of acidity or alkalinity are expressed thus:

	pH		*pH*
Extremely acid	Below 4.5	Neutral	6.6–7.3
Very strongly acid	4.5–5.0	Mildly alkaline	7.4–7.8
Strongly acid	5.1–5.5	Moderately alkaline	7.9–8.4
Medium acid	5.6–6.0	Strongly alkaline	8.5–9.0
Slightly acid	6.1–6.5	Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Runoff (hydraulics). The part of the precipitation upon a drainage area that is discharged from the area in stream channels. The water that flows off the land surface without sinking in is called surface runoff; that which enters the ground before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. Individual rock or mineral fragments in soils having diameters ranging from 0.05 to 2.0 millimeters. Most sand grains consist of quartz, but they may be of other mineral composition. The textural class name of any soil that contains 85 percent or more sand and not more than 10 percent clay.

Series, soil. A group of soils developed from a particular type of parent material and having genetic horizons that, except for texture of the surface layer, are similar in differentiating characteristics and in arrangement in the profile.

Silt. Individual mineral particles in a soil that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). Soil of the silt textural class is 80 percent or more silt and less than 12 percent clay.

Soil. A natural, three-dimensional body on the earth's surface that supports plants. Soil has properties resulting from the integrated effect of climate and living matter acting upon parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the parent material, in which the processes of soil formation are active. The solum in a mature soil includes the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristics of the soil are largely confined to the solum.

Stratified. Composed of, or arranged in, strata, or layers, such as stratified alluvium. The term is confined to geological material. Layers in soils that result from the processes of soil formation are called horizons; those inherited from the parent material are called strata.

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. The principal forms of soil structure are *platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are (1) *single grain* (each grain by itself, as in dune sand) or (2) *massive* (the particles adhering together without any regular cleavage, as in many claypans and hardpans).

Subsoil. In many soils, the B horizon; roughly, the part of the profile below plow depth.

Substratum. Any layer lying beneath the solum, or true soil. The C horizon.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, about 5 to 8 inches in thickness. The plowed layer.

Terrace (geological). An old alluvial plain, ordinarily flat or undulating, bordering a river, lake, or the sea. Stream terraces are frequently called *second bottoms*, as contrasted to *flood plains*, and are seldom subject to overflow. Marine terraces were deposited by the sea and are generally wide.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand*, *loamy sand*, *sandy loam*, *loam*, *silt loam*, *silt*, *sandy clay loam*, *clay loam*, *silty clay loam*, *sandy clay*, *silty clay*, and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Tilth, soil. The condition of the soil in relation to the growth of plants, especially soil structure. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable, granular structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Type, soil. A subdivision of the soil series that is made on the basis of differences in the texture of the surface layer.

Upland (geologic). Land consisting of material unworked by water in recent geologic time and lying, in general, at a higher elevation than the alluvial plain or stream terrace. Land above the lowlands along rivers.

Well-graded soil (engineering). A soil or soil material consisting of particles that are well distributed over a wide range in size or diameter. Such a soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

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GUIDE TO MAPPING UNITS

[See table 1, p. 11, for approximate acreage and proportionate extent of soils; table 2, p. 46, for suitability ratings of soils for specified crops; and table 3, p. 48, for estimated average acre yields of the principal crops. See pp. 67 to 83 for information on engineering properties of the soils]

Map symbol	Mapping unit	Page	Capability unit		Woodland group		Wildlife group	
			Symbol	Page	Number	Page	Number	Page
Ba	Bayboro loam	10	IIIw-2	41	13	60	4	66
CaB	Caroline loamy sand, 2 to 6 percent slopes	12	IIe-3	36	3	55	1	63
CaB2	Caroline loamy sand, 2 to 6 percent slopes, eroded	12	IIe-3	36	3	55	1	63
CaC2	Caroline loamy sand, 6 to 10 percent slopes, eroded	11	IIIe-3	40	3	55	1	63
Cf	Coxville fine sandy loam	12	IIIw-2	41	9	58	4	66
Co	Coxville sandy loam	12	IIIw-2	41	9	58	4	66
Db	Dunbar fine sandy loam	13	IIw-2	38	7	57	3	65
Dn	Dunbar sandy loam	13	IIw-2	38	7	57	3	65
EmB	Eustis loamy sand, 0 to 6 percent slopes	13	IIIs-1	42	1	52	2	65
EmC	Eustis loamy sand, 6 to 10 percent slopes	14	IVs-1	44	1	52	2	65
EmD	Eustis loamy sand, 10 to 15 percent slopes	14	VIs-1	45	1	52	2	65
EsB	Eustis sand, 0 to 6 percent slopes	14	IVs-1	44	1	52	2	65
EsC	Eustis sand, 6 to 10 percent slopes	14	IVs-1	44	1	52	2	65
EtB	Eustis sand, terrace, 0 to 6 percent slopes	14	IVs-1	44	1	52	2	65
FaB	Faceville loamy sand, 2 to 6 percent slopes	14	IIe-2	36	3	55	1	63
FaB2	Faceville loamy sand, 2 to 6 percent slopes, eroded	15	IIe-2	36	3	55	1	63
FaC2	Faceville loamy sand, 6 to 10 percent slopes, eroded	15	IIIe-2	39	3	55	1	63
GaB	Gilead loamy sand, 2 to 6 percent slopes	15	IIe-4	37	12	59	1	63
Gb	Goldsboro loamy sand	16	IIw-2	38	3	55	3	65
Gk	Goldsboro loamy sand, thick surface	16	IIw-2	38	4	56	3	65
Gr	Grady loam	16	IIIw-2	41	9	58	4	66
Gt	Grady loam, thin surface	16	VIw-1	44	9	58	4	66
Ig	Izagora sandy loam, sandy substratum	17	IIw-2	38	7	57	3	65
Ka	Kalmia loamy sand	17	I-1	35	3	55	1	63
Km	Klej loamy sand	18	IIIw-1	41	7	57	4	66
Kt	Klej loamy sand, terrace	18	IIIw-1	41	7	57	4	66
LaB	Lakeland sand, 0 to 6 percent slopes	18	IVs-1	44	1	52	2	65
LaC	Lakeland sand, 6 to 10 percent slopes	19	IVs-1	44	1	52	2	65
LaD	Lakeland sand, 10 to 15 percent slopes	19	VIs-1	45	1	52	2	65
LdA	Lakeland sand, moderately shallow, 0 to 2 percent slopes	19	IIIs-1	42	2	53	2	65
LdB	Lakeland sand, moderately shallow, 2 to 6 percent slopes	19	IIIs-1	42	2	53	2	65
LdC	Lakeland sand, moderately shallow, 6 to 10 percent slopes	19	IVs-1	44	2	53	2	65
LdD	Lakeland sand, moderately shallow, 10 to 15 percent slopes	19	VIs-1	45	2	53	2	65
LkB	Lakeland sand, moderately shallow, terrace, 0 to 4 percent slopes	19	IIIs-1	42	2	53	2	65
LlB	Lakeland sand, terrace, 0 to 6 percent slopes	19	IVs-1	44	1	52	2	65
Lm	Leaf clay loam, thin surface	20	IVw-2	43	8	57	4	66
Ln	Leaf loamy sand, sandy substratum	20	IVw-2	43	8	57	4	66
Lo	Local alluvial land	20	IIw-1	38	5	56	3	65
Ls	Lynchburg loamy fine sand	21	IIw-2	38	7	57	3	65

GUIDE TO MAPPING UNITS--Continued

Map symbol	Mapping unit	Page	Capability unit		Woodland group		Wildlife group	
			Symbol	Page	Number	Page	Number	Page
Ly	Lynchburg loamy sand	21	IIw-2	38	7	57	3	65
MaB	Magnolia loamy sand, 2 to 6 percent slopes	22	IIe-2	36	3	55	1	63
MaB2	Magnolia loamy sand, 2 to 6 percent slopes, eroded	22	IIe-2	36	3	55	1	63
MaC2	Magnolia loamy sand, 6 to 10 percent slopes, eroded	22	IIIe-2	39	3	55	1	63
MbA	Marlboro loamy sand, 0 to 2 percent slopes	22	I-2	35	3	55	1	63
MbB	Marlboro loamy sand, 2 to 6 percent slopes	23	IIe-2	36	3	55	1	63
MbB2	Marlboro loamy sand, 2 to 6 percent slopes, eroded	22	IIe-2	36	3	55	1	63
MbC2	Marlboro loamy sand, 6 to 10 percent slopes, eroded	23	IIIe-2	39	3	55	1	63
Mc	McColl loam	23	IIIw-2	41	9	58	4	66
Md	McColl sandy loam	23	IIIw-2	41	9	58	4	66
Mn	Mixed alluvial land	23	IVw-4	43	15	61	5	67
My	Myatt loamy sand	24	IVw-3	43	11	59	5	67
NfA	Norfolk loamy fine sand, 0 to 2 percent slopes	25	I-1	35	3	55	1	63
NfB	Norfolk loamy fine sand, 2 to 6 percent slopes	25	IIe-1	36	3	55	1	63
NkA	Norfolk loamy fine sand, thick surface, 0 to 2 percent slopes	25	IIs-1	39	4	56	1	63
NkB	Norfolk loamy fine sand, thick surface, 2 to 6 percent slopes	25	IIs-1	39	4	56	1	63
NoA	Norfolk loamy sand, 0 to 2 percent slopes	24	I-1	35	3	55	1	63
NoB	Norfolk loamy sand, 2 to 6 percent slopes	24	IIe-1	36	3	55	1	63
NoB2	Norfolk loamy sand, 2 to 6 percent slopes, eroded	24	IIe-1	36	3	55	1	63
NoC2	Norfolk loamy sand, 6 to 10 percent slopes, eroded	25	IIIe-1	39	3	55	1	63
NsA	Norfolk sand, thick surface, 0 to 2 percent slopes	25	IIs-1	39	4	56	2	65
NsB	Norfolk sand, thick surface, 2 to 6 percent slopes	26	IIs-1	39	4	56	2	65
NsC	Norfolk sand, thick surface, 6 to 10 percent slopes	26	IIIe-5	40	4	56	2	65
Ok	Okenee loam	26	IIIw-4	42	10	58	5	67
OrA	Orangeburg loamy sand, 0 to 2 percent slopes	27	I-1	35	3	55	1	63
OrB	Orangeburg loamy sand, 2 to 6 percent slopes	27	IIe-1	36	3	55	1	63
OrB2	Orangeburg loamy sand, 2 to 6 percent slopes, eroded	27	IIe-1	36	3	55	1	63
OrC2	Orangeburg loamy sand, 6 to 10 percent slopes, eroded	27	IIIe-1	39	3	55	1	63
Pm	Plummer loamy sand	28	Vw-2	44	11	59	5	67
Po	Portsmouth loam	28	IIIw-4	42	10	58	4	66
Pr	Portsmouth sandy loam	28	IIIw-4	42	10	58	4	66
Ra	Rains loamy sand	29	IVw-3	43	7	57	5	67
RmA	Ruston loamy sand, 0 to 2 percent slopes	29	I-1	35	3	55	1	63

GUIDE TO MAPPING UNITS--Continued

Map symbol	Mapping unit	Page	Capability unit		Woodland group		Wildlife group	
			Symbol	Page	Number	Page	Number	Page
RmB	Ruston loamy sand, 2 to 6 percent slopes	29	IIe-1	36	3	55	1	63
RmB2	Ruston loamy sand, 2 to 6 percent slopes, eroded	29	IIe-1	36	3	55	1	63
RmC	Ruston loamy sand, 6 to 10 percent slopes	30	IIIe-1	39	3	55	1	63
RmC2	Ruston loamy sand, 6 to 10 percent slopes, eroded	30	IIIe-1	39	3	55	1	63
RsA	Ruston loamy sand, thick surface, 0 to 2 percent slopes	30	IIs-1	39	4	56	1	63
RsB	Ruston loamy sand, thick surface, 2 to 6 percent slopes	30	IIs-1	39	4	56	1	63
RsC	Ruston loamy sand, thick surface, 6 to 10 percent slopes	30	IIIe-5	40	4	56	1	63
Ru	Rutlege loamy sand	30	Vw-2	44	11	59	5	67
Sw	Swamp	31	VIIw-1	45	15	61	5	67
VaC2	Vaucluse loamy sand, 6 to 10 percent slopes, eroded	31	IVe-4	43	14	60	2	65
VaE2	Vaucluse loamy sand, 15 to 25 percent slopes, eroded	31	VIe-2	44	14	60	2	65
VaC	Vaucluse sand, thick surface, 6 to 10 percent slopes	31	IIIe-4	40	14	60	2	65
VsD2	Vaucluse soils, 10 to 15 percent slopes, eroded	32	VIe-2	44	14	60	2	65
Wa	Wahee sandy loam, sandy substratum	32	IIIw-3	41	6	57	4	66

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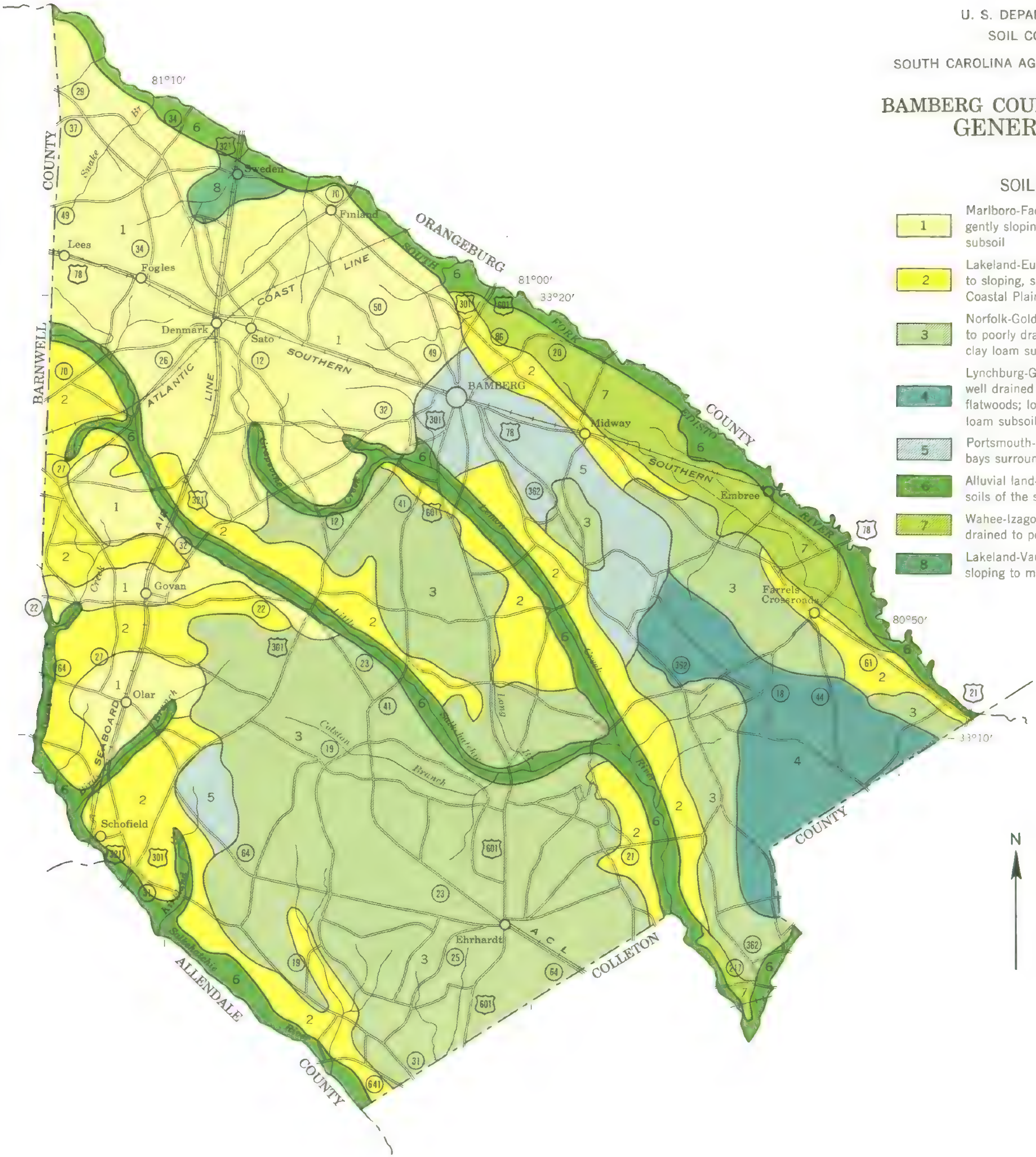
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SOUTH CAROLINA AGRICULTURAL EXPERIMENT STATION

BAMBERG COUNTY, SOUTH CAROLINA
GENERAL SOIL MAP



SOIL ASSOCIATIONS

1 — Marlboro-Faceville association: Nearly level and gently sloping, well-drained soils with a clayey subsoil

2 — Lakeland-Eustis association: Droughty, nearly level to sloping, sandy soils (of the lower and middle Coastal Plain uplands)

3 — Norfolk-Goldsboro-Rains association: Well-drained to poorly drained, nearly level soils with a sandy clay loam subsoil

4 — Lynchburg-Goldsboro-Rains association: Moderately well drained to very poorly drained soils of the flatwoods; loamy sand surface layer and sandy clay loam subsoil

5 — Portsmouth-Lakeland association: Large Carolina bays surrounded by low sand ridges

6 — Alluvial land-Swamp association: Very poorly drained soils of the stream flood plains

7 — Wahee-Izagora-Leaf association: Moderately well drained to poorly drained soils on stream terraces

8 — Lakeland-Vaucluse-Norfolk association: Gently sloping to moderately steep, sandy soils

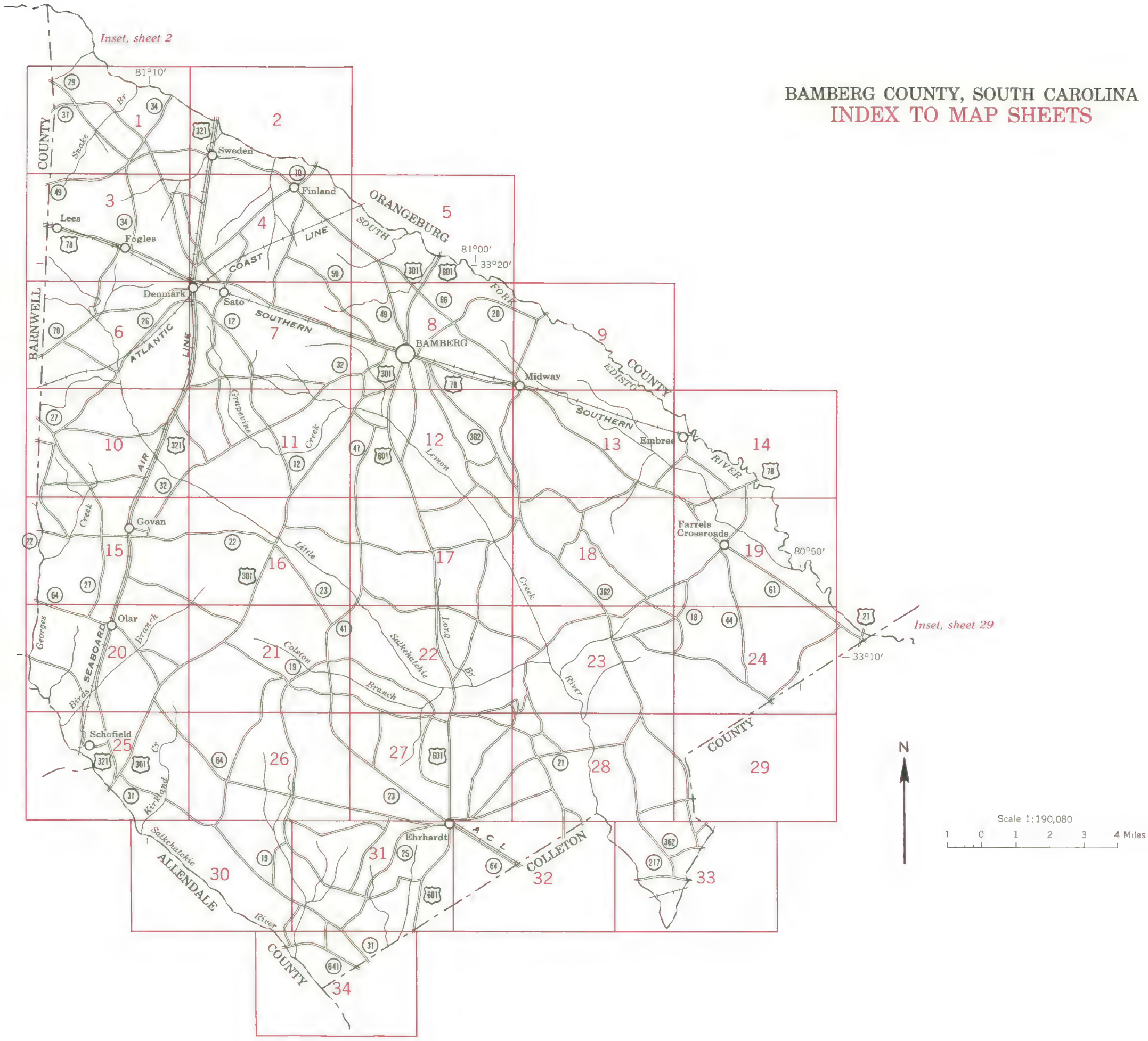
June 1965

N

Scale 1:190,080

1 0 1 2 3 4 Miles

BAMBERG COUNTY, SOUTH CAROLINA
INDEX TO MAP SHEETS



U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

BAMBERG COUNTY, SOUTH CAROLINA

SOUTH CAROLINA AGRICULTURAL EXPERIMENT STATION

SOIL LEGEND

The first capital letter is the initial one of the soil name. A second capital letter, A, B, C, D, or E shows the slope. Most symbols without a slope letter are those of nearly level soils or land types but some are for soils or land types that have a considerable range in slope. A final number, 2, in the symbol, shows that the soil is eroded.

SYMBOL	NAME
Ba	Bayboro loam
CaB	Caroline loamy sand, 2 to 6 percent slopes
CaB2	Caroline loamy sand, 2 to 6 percent slopes, eroded
CaC2	Caroline loamy sand, 6 to 10 percent slopes, eroded
Cf	Coxville fine sandy loam
Co	Coxville sandy loam
Db	Dunbar fine sandy loam
Dn	Dunbar sandy loam
EmB	Eustis loamy sand, 0 to 6 percent slopes
EmC	Eustis loamy sand, 6 to 10 percent slopes
EmD	Eustis loamy sand, 10 to 15 percent slopes
EsB	Eustis sand, 0 to 6 percent slopes
EsC	Eustis sand, 6 to 10 percent slopes
EtB	Eustis sand, terrace, 0 to 6 percent slopes
FaB	Faceville loamy sand, 2 to 6 percent slopes
FaB2	Faceville loamy sand, 2 to 6 percent slopes, eroded
FaC2	Faceville loamy sand, 6 to 10 percent slopes, eroded
GaB	Gilead loamy sand, 2 to 6 percent slopes
Gb	Goldsboro loamy sand
Gk	Goldsboro loamy sand, thick surface
Gr	Grady loam
Gt	Grady loam, thin surface
Ig	Izagora sandy loam, sandy substratum
Ka	Kalmia loamy sand
Km	Klej loamy sand
Kt	Klej loamy sand, terrace
LaB	Lakeland sand, 0 to 6 percent slopes
LaC	Lakeland sand, 6 to 10 percent slopes
LaD	Lakeland sand, 10 to 15 percent slopes
LdA	Lakeland sand, moderately shallow, 0 to 2 percent slopes
LdB	Lakeland sand, moderately shallow, 2 to 6 percent slopes
LdC	Lakeland sand, moderately shallow, 6 to 10 percent slopes
LdD	Lakeland sand, moderately shallow, 10 to 15 percent slopes
LkB	Lakeland sand, moderately shallow, terrace, 0 to 4 percent slopes
LlB	Lakeland sand, terrace, 0 to 6 percent slopes
Lm	Leaf clay loam, thin surface
Ln	Leaf loamy sand, sandy substratum
Lo	Local alluvial land
Ls	Lynchburg loamy fine sand
Ly	Lynchburg loamy sand
MaB	Magnolia loamy sand, 2 to 6 percent slopes
MaB2	Magnolia loamy sand, 2 to 6 percent slopes, eroded
MaC2	Magnolia loamy sand, 6 to 10 percent slopes, eroded
MbA	Marlboro loamy sand, 0 to 2 percent slopes
MbB	Marlboro loamy sand, 2 to 6 percent slopes
MbB2	Marlboro loamy sand, 2 to 6 percent slopes, eroded
MbC2	Marlboro loamy sand, 6 to 10 percent slopes, eroded
Mc	McColl loam
Md	McColl sandy loam
Mn	Mixed alluvial land
My	Myatt loamy sand
NfA	Norfolk loamy fine sand, 0 to 2 percent slopes
NfB	Norfolk loamy fine sand, 2 to 6 percent slopes
NkA	Norfolk loamy fine sand, thick surface, 0 to 2 percent slopes
NkB	Norfolk loamy fine sand, thick surface, 2 to 6 percent slopes
NoA	Norfolk loamy sand, 0 to 2 percent slopes
NoB	Norfolk loamy sand, 2 to 6 percent slopes
NoB2	Norfolk loamy sand, 2 to 6 percent slopes, eroded
NoC2	Norfolk loamy sand, 6 to 10 percent slopes, eroded
NsA	Norfolk sand, thick surface, 0 to 2 percent slopes
NsB	Norfolk sand, thick surface, 2 to 6 percent slopes
NsC	Norfolk sand, thick surface, 6 to 10 percent slopes
Ok	Okenee loam
OrA	Orangeburg loamy sand, 0 to 2 percent slopes
OrB	Orangeburg loamy sand, 2 to 6 percent slopes
OrB2	Orangeburg loamy sand, 2 to 6 percent slopes, eroded
OrC2	Orangeburg loamy sand, 6 to 10 percent slopes, eroded
Pm	Plummer loamy sand
Po	Portsmouth loam
Pr	Portsmouth sandy loam
Ra	Rains loamy sand
RmA	Ruston loamy sand, 0 to 2 percent slopes
RmB	Ruston loamy sand, 2 to 6 percent slopes
RmB2	Ruston loamy sand, 2 to 6 percent slopes, eroded
RmC	Ruston loamy sand, 6 to 10 percent slopes
RmC2	Ruston loamy sand, 6 to 10 percent slopes, eroded
RsA	Ruston loamy sand, thick surface, 0 to 2 percent slopes
RsB	Ruston loamy sand, thick surface, 2 to 6 percent slopes
RsC	Ruston loamy sand, thick surface, 6 to 10 percent slopes
Ru	Rutlege loamy sand
Sw	Swamp
VaC2	Vaucluse loamy sand, 6 to 10 percent slopes, eroded
VaE2	Vaucluse loamy sand, 15 to 25 percent slopes, eroded
VcC	Vaucluse sand, thick surface, 6 to 10 percent slopes
VsD2	Vaucluse soils, 10 to 15 percent slopes, eroded
Wa	Wahee sandy loam, sandy substratum

CONVENTIONAL SIGNS

WORKS AND STRUCTURES

Highways and roads
- Dual
- Good motor
- Poor motor
- Trail

Highway markers
- National Interstate
- U.S.
- State

Railroads
- Single track
- Multiple track
- Abandoned

Bridges and crossings
- Road
- Trail, foot
- Railroad
- Ferries
- Ford
- Grade
- R. R. over
- R. R. under
- Tunnel

Buildings
- School
- Church
- Station

Mines and Quarries
- Mine dump
- Pits, gravel or other

Power lines

Pipe lines

Cemeteries

Dams

Levees

Tanks

Forest fire or lookout station

BOUNDARIES

- National or state
- County

DRAINAGE

Streams
- Perennial
- Intermittent, unclass.

Canals and ditches
- CANAL
- DITCH

Lakes and ponds
- Perennial
- Intermittent

Wells
- flowing

Springs

Marsh

Wet spot

Drainage end

RELIEF

Escarpments
- Bedrock
- Other

Prominent peaks

Depressions

SOIL SURVEY DATA

Soil boundary and symbol (Dx)

Gravel

Stones

Rock outcrops

Chert fragments

Clay spot

Sand spot

Gumbo or scabby spot

Made land

Severely eroded spot

Blowout, wind erosion

Gullies

Soil map constructed 1964 by Cartographic Division, Soil Conservation Service, USDA, from 1963 aerial photographs. Controlled mosaic based on South Carolina plane coordinate system, south zone, Lambert conformal conic projection. 1927 North American datum.

BAMBERG COUNTY, SOUTH CAROLINA — SHEET NUMBER 1

(Joins inset, sheet 2)

BAMBERG COUNTY, SOUTH CAROLINA — SHEET NUMBER 10

(Joins sheet 6)

(Joins sheet 11)

(Joins sheet 15)

RmB RsB

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

BAMBERG COUNTY, SOUTH CAROLINA — SHEET NUMBER 11

BAMBERG COUNTY, SOUTH CAROLINA — SHEET NUMBER 12

12

(Joins sheet 8)

N

(Joins sheet 11)

(Joins sheet 13)

(Joins sheet 17)

Cedar Spring

Hollmon Branch

Lemon Creek

Spring Church

Hampton School

0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

(Joins sheet 9)

13

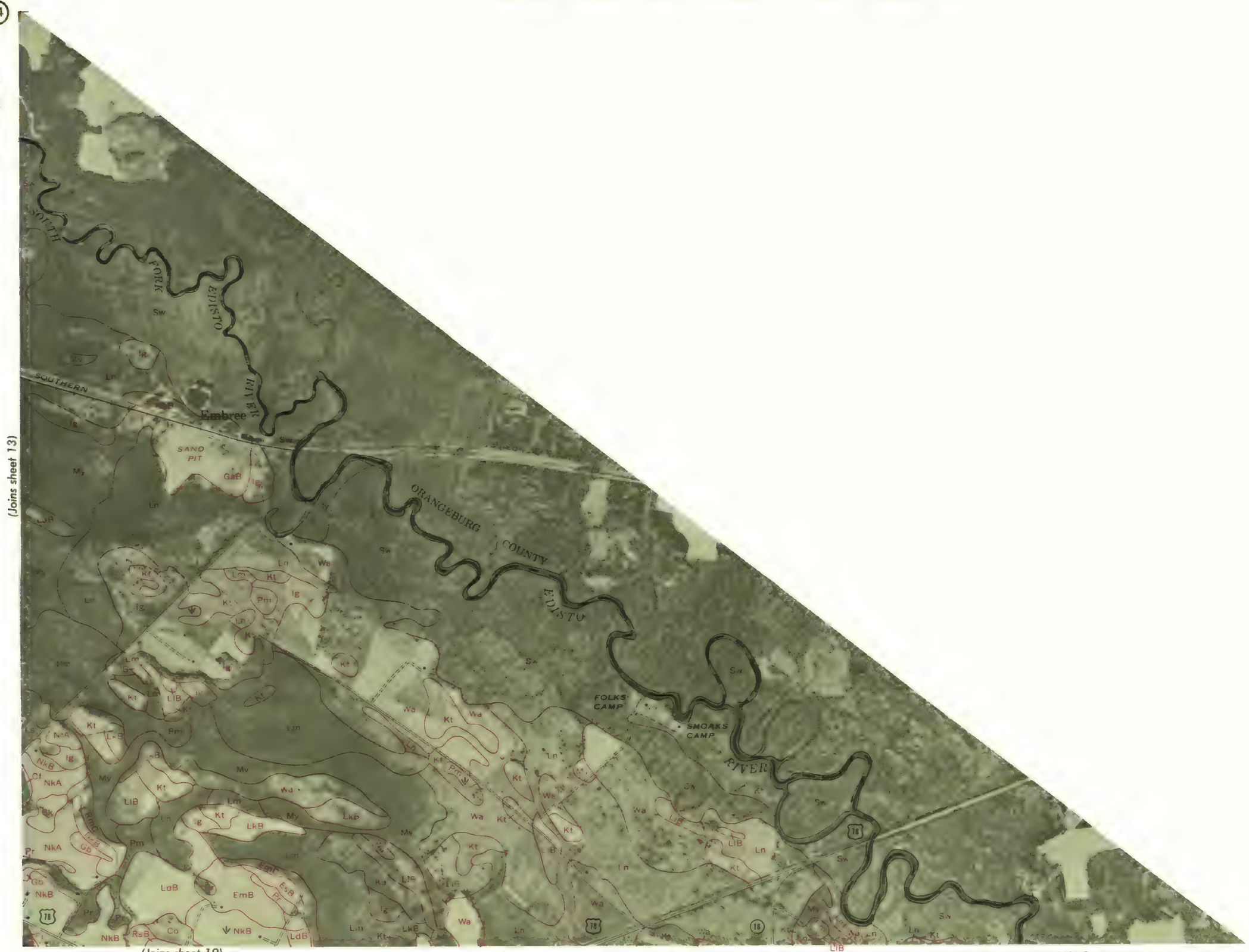
N

(Joins sheet 12)

(Joins sheet 14)

(Joins sheet 18)

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet


14
N
(Joins sheet 13)
SOUTH FORK EDISTO RIVER
SOUTHERN
Embree
SAND PIT
ORANGEBURG COUNTY
EDISTO
FOLKS CAMP
SMOAKS CAMP
RIVER
78
(Joins sheet 19)
0
½
1 Mile
Scale 1: 20 000
0
5000 Feet

RmB (Joins sheet 10)

15

N

Midok Place Church

Govan

Georges Creek Church

BARNWELL COUNTY

Georges Creek

SEABOARD AIR LINE

(Joins sheet 16)

(Joins sheet 20)

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

16

N

(Joins sheet 11)

(Joins sheet 15)

(Joins sheet 17)

(Joins sheet 21)

Springtown Church

Union Church

Little Salkehatchie River

Horsepen Bay

Green Bay

0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

(Joins sheet 12)

17

N

(Joins sheet 16)

(Joins sheet 18)

(Joins sheet 22)

Orange Grove Church

Bethel Church

Little Salkehatchie River

Crooked Pond

Clear

Lemon Creek

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the South Carolina Agricultural Experiment Station

18

(Joins sheet 13)

N

Hog Bay

Tony Hill Bay

Fish Pond Church

Poplar Grove School

Goodland Church

Bay Creek

Bay

Lemon Creek

(Joins sheet 17)

(Joins sheet 19)

(Joins sheet 23)

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

(Joins sheet 14)

19

N

(Joins sheet 18)

Claflin School
Free Gift Church
Farrels Crossroads
Edisto Church
Free Gift School
HOFFMAN LANDING
Brier
Frntz Old River Lake
ORANGEBURG COUNTY
Big Eddy Lake
Edisto Bluff

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

(Joins inset, sheet 29)

(Joins sheet 24)

(2)

N

(Joins sheet 1)

(Joins sheet 1)

(Joins sheet 4)

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

(Joins sheet 15)

(Joins sheet 21)

(Joins sheet 25)

N

BARNWELL COUNTY

Salkehatchie River

Creek

Branch

Olar

Bethlehem Church

AIR LINE

SEABOARD

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

BAMBERG COUNTY, SOUTH CAROLINA — SHEET NUMBER 21

(Joins sheet 16)

21

N

(Joins sheet 20)

(Joins sheet 22)

(Joins sheet 26)

Dyaces Bay

Alligator Bay

Colston School

Colston Church

Macedonia Church

Colston Branch

Camp Fair Branch

Indian Branch

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

22

N

(Joins sheet 17)

(Joins sheet 21)

(Joins sheet 23)

(Joins sheet 27)

Clear Pond

Clear Pond School

Little Salkehatchie River

Lemon Branch

Colston Branch

Indian Camp Branch

Salkehatchie River

Swamp

Mt Pleasant Church

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

(Joins sheet 18)

23

N

(Joins sheet 22)

(Joins sheet 24)

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

(Joins sheet 28)

BAMBERG COUNTY, SOUTH CAROLINA — SHEET NUMBER 24

(24)

N

(Joins sheet 19)

(Joins inset, sheet 29)

(Joins sheet 23)

(Joins sheet 29)

COLLETON COUNTY

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

25

(Joins sheet 20)

(Joins sheet 26)

(Joins sheet 30)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the South Carolina Agricultural Experiment Station.

26

(Joins sheet 21)

N

(Joins sheet 25)

(Joins sheet 27)

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

(Joins sheet 30) | (Joins sheet 31)

(Joins sheet 22)

27

N

(Joins sheet 26)

(Joins sheet 28)

Old Coggins Grove School

Colston Swamp

St. Lukes Church

Savannah Creek Church

Ehrhardt

(Joins sheet 31) | (Joins sheet 32)

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet


(Joins sheet 23)
N
Prospect Church
Little Salkehatchie River
Dean Swamp
Branch
COLLETON COUNTY
(Joins sheet 27)
(Joins sheet 29)
(Joins sheet 32)
(Joins sheet 33)
0 ½ 1 Mile
Scale 1:20 000
0 5000 Feet

(Joins sheet 24)

(Joins sheet 28)

(Joins sheet 24)

(Joins sheet 19)

(Joins sheet 33)

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

BAMBERG COUNTY, SOUTH CAROLINA — SHEET NUMBER 3

(Joins sheet 1)

3

N

(Joins sheet 4)

(Joins sheet 6)

Mt Zion Church

Lees

Fogles

BARNWELL COUNTY

SOUTHERN

Branch

Hutto Branch

Swamp

Scale 1:20 000

0 ½ 1 Mile

0 5000 Feet

This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the South Carolina Agricultural Experiment Station

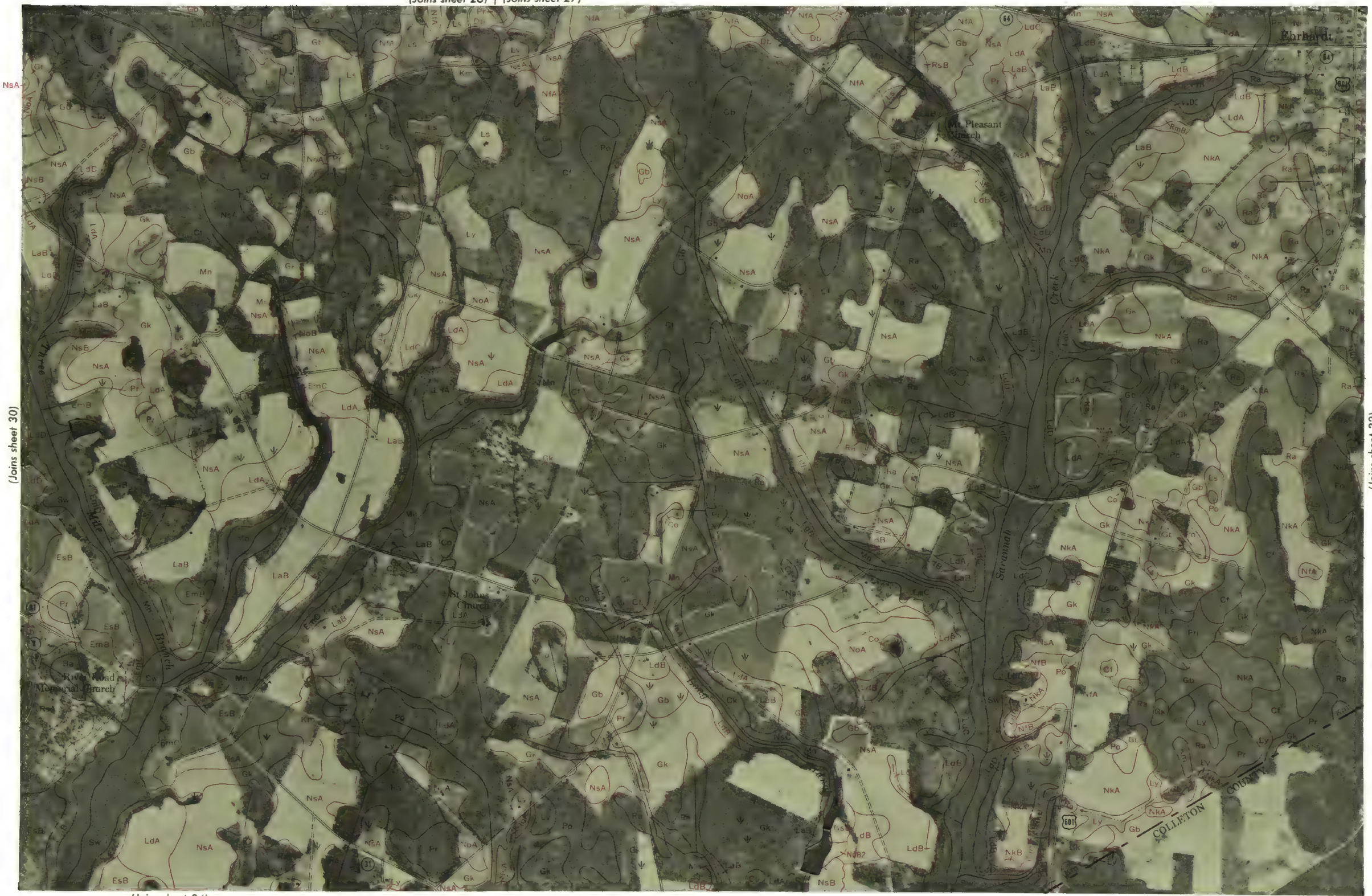
BAMBERG COUNTY, SOUTH CAROLINA — SHEET NUMBER 30

(Joins sheet 25) | (Joins sheet 26)

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

(Joins sheet 26) | (Joins sheet 27)

(31)



(Joins sheet 30)

(Joins sheet 32)

(Joins sheet 34)

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

BAMBERG COUNTY, SOUTH CAROLINA — SHEET NUMBER 32

(Joins sheet 27) | (Joins sheet 28)

(32)

N

(Joins sheet 31)

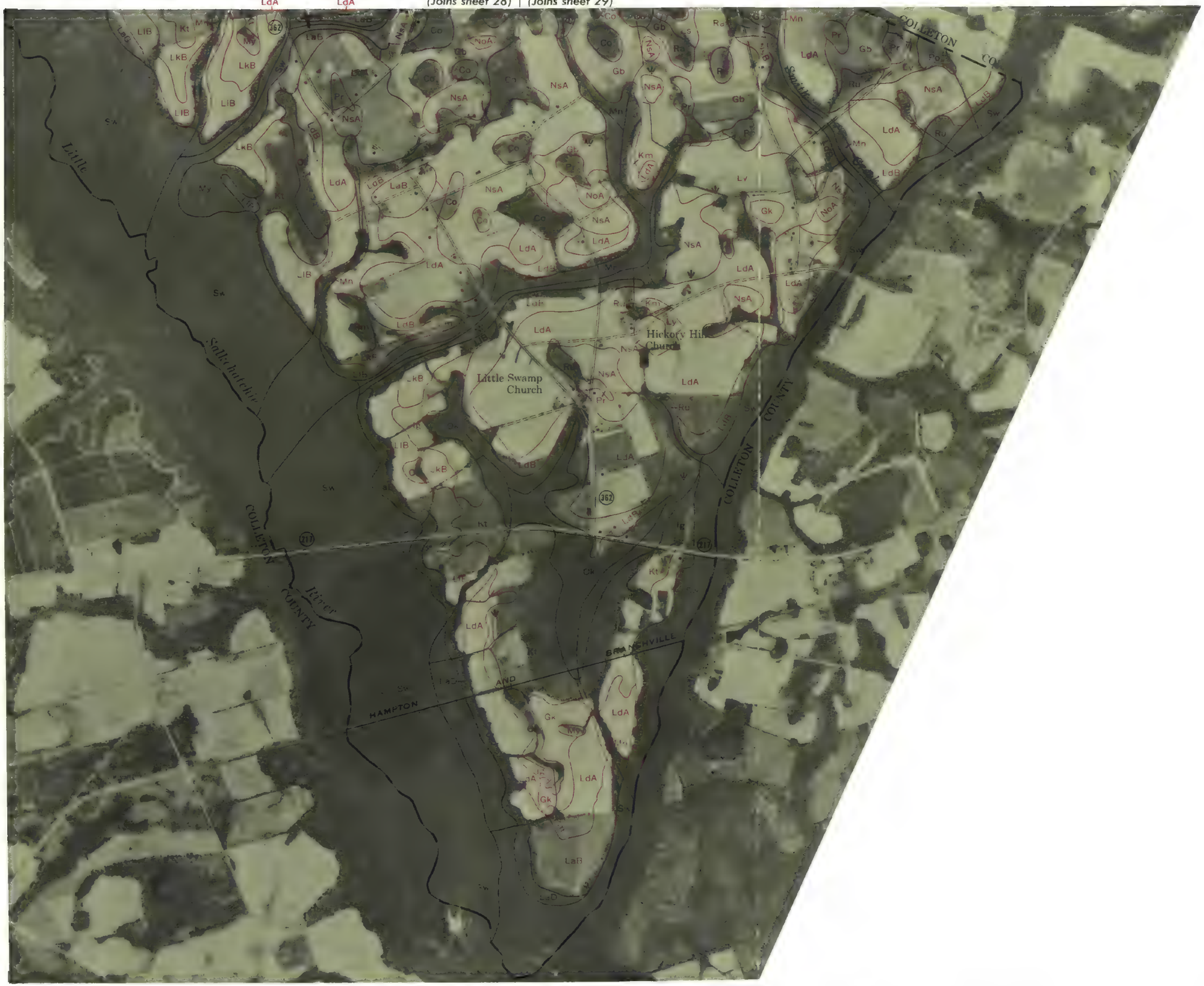
0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

(Joins sheet 28) | (Joins sheet 29)

N



(Joins sheet 30) | (Joins sheet 31)

BAMBERG COUNTY, SOUTH CAROLINA — SHEET NUMBER 34

N

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

(4)

(Joins sheet 2)

(Joins sheet 3)

(Joins sheet 5)

(Joins sheet 7)

N

Finland

Denmark

Zion Hill School

Stout Creek

Flat Creek

LINE

AIR

SEABOARD

ATLANTIC COAST

SOUTH ORANGEBURG COUNTY

BOISTO RIVER

0 ½ 1 Mile

Scale 1: 20 000

0 5000 Feet

N

(Joins sheet 4)

(Joins sheet 8)

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

(Joins sheet 3)

(Joins sheet 7)

(Joins sheet 10)

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet

BAMBERG COUNTY, SOUTH CAROLINA — SHEET NUMBER 7

(Joins sheet 4)

(Joins sheet 6)

(Joins sheet 8)

(Joins sheet 11)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

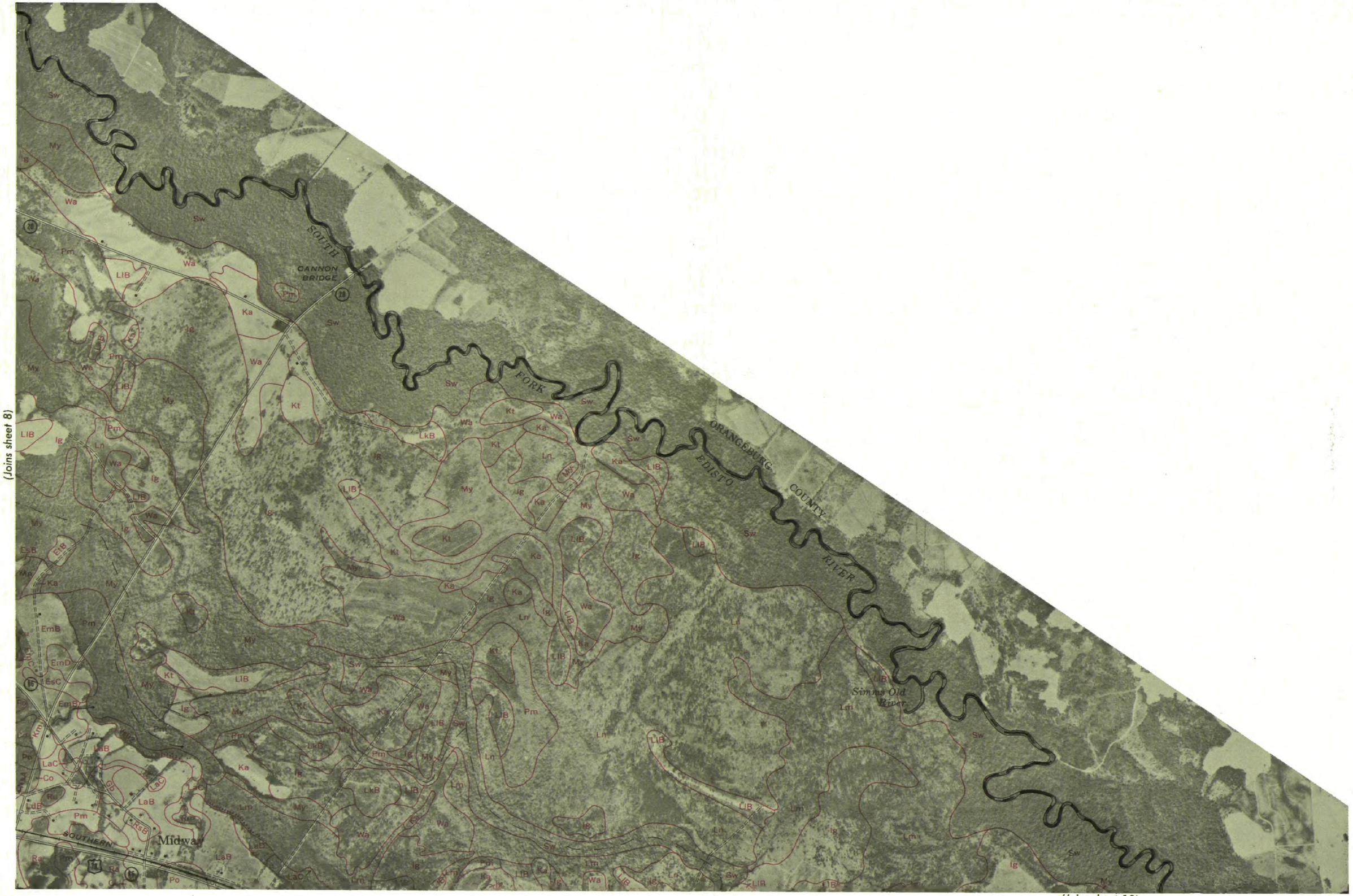
This map is one of a set compiled in 1964 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture and the South Carolina Agricultural Experiment Station.

8

N


(Joins sheet 5)
(Joins sheet 7)
(Joins sheet 9)
(Joins sheet 12)
BAMBERG
SOUTHERN
SOUTHERN
NORTHERN
DYKEMAN
FaB2 FaC2
RmB2
Sw
FaC2 NsB
LdB
RmB
LdC
NsB
EsB
0
½
1 Mile
Scale 1: 20 000
0
5000 Feet

N



(Joins sheet 8)

(Joins sheet 13)

0 ½ 1 Mile Scale 1: 20 000 0 5000 Feet